

MOTOR AGE

Vol. VIII. No. 14

CHICAGO, OCTOBER 5, 1905

Ten Cents a Copy



THE car that has been consistently successful in the past can be depended upon to be even more successful in the future. Each successive model has added to the Packard record for endurance and reliability, and that unequalled smoothness of running. The latest model, the Packard "24," upon which will be concentrated every thought and every facility of the Packard factory during the coming season, has already proven itself to be the best thing we have ever turned out. On June 8th, the first car of this model made a run of three hundred miles from Detroit to Chicago in the total elapsed time of 12½ hours, the running time 11 hours, carrying from five to six passengers. After a night's rest in Chicago, the car made the return journey on the following day, June 9th. This severe test of six hundred miles was made without repairs or replacements, except to tires.

Price, (with standard equipment) \$3,500, f. o. b. Detroit

Write for Catalogue and name of the nearest Packard dealer

PACKARD MOTOR CAR COMPANY, Dept. 2, Detroit, Mich., U.S.A.

New York Branch, 1540 Broadway

Member Association Licensed Automobile Manufacturers

"Talk to Greer"

That's the advice of the Greer Motor Car Co. to parties who feel the symptoms of "automobilitis" coming on; also to those already afflicted with this highly delectable disease but who desire a "change of treatment."

The Greer Company also rent automobiles.

Now, we have never been in the livery business, but we venture to say that about the quickest and surest way to bring about a sheriff's sale would be to use tires that would habitually go to the bad at an ungentlemanly distance from home.

At any rate, it would probably be pretty strenuous business collecting rentals under such conditions.


And the Greer people evidently know this—judging from the precautionary measures they have taken.

Here's what they say in a letter dated Sept. 21, '05:

"We are using your tires in our livery, running them on Winton, Peerless, Michigan and Pierce-Arrow cars.

"As you know, the livery business is very hard on tires, but we are satisfied with the service your tires have given us.

"Have used both your Clincher and Dunlop."

 Morgan & Wright tires are made to meet (fully meet) the requirements for any kind of service. It doesn't make the slightest difference what kind of work you give them to do.

MORGAN & WRIGHT TIRES
ARE GOOD TIRES

MORGAN & WRIGHT

19 North May St. — CHICAGO — 309 Michigan Ave.

PHILADELPHIA—Cor. Broad and Vine Sts.
BOSTON—228 Columbus Ave.
CLEVELAND—347 Huron St.
DAYTON—417 E. 5th St.

DETROIT—265 Jefferson Av.
NEW YORK—214 W. 47th St.
SYRACUSE—212-214 S. Clinton St.
MINNEAPOLIS—708 Hennepin Av.
ATLANTA—35 Edgewood Av.

ST. LOUIS—538 Vandeventer Av.
DENVER—1562 Broadway.
LOS ANGELES—940 S. Main St.
SAN FRANCISCO—1067 Mission St.

MOTOR AGE

VOL. VIII. No. 14

CHICAGO, OCTOBER 5, 1905

\$2.00 Per Year

EUROPE FINISHES YEAR'S CALENDAR

30-1
10

GENERAL VIEW OF MOUNT VENTOUX, WHERE HILL CLIMB OCCURRED

Paris, Sept. 23—With the Mount Ventoux hill climb, the Semmering hill climb in Austria and several minor events, the motoring competition in France for this year practically came to a close. The season wound up with the 2 days' meeting, and the French can rest content after a campaign of the greatest brilliance, which included every kind of a competition that tends to develop the weakness in automobile construction and furnish the manufacturers with ideas on how to improve their product. There have been road races galore, hill climbs of every sort and description, and long tours which have attracted international attention. Of course the automobile proper has received the most attention on the part of the promoters, but the others have not been overlooked, the motor boats, tri-cars and motor cycles having all come in for their share.

France can well be satisfied with her record. The Bennett cup race, won by Thery, redounds to the credit of her makers, especially the Richard-Brasier people, while in the classic Ardennes circuit race French colors were again home first in Hemery's Darracq car. The great Pyrennes tour, vying as it did with Germany's Herkomer, was an unqualified success, M. Sorel vindicating the merits of the De Dietrich, sixty-four racers taking part in the long trip. While France was not officially represented in

the Harmsworth cup contest for the motor boat championship, she put one over on the English in the cross channel race in which La Rapiere succeeded in gaining the verdict over the English Napier. The three-wheelers have had an opportunity to demonstrate their worth and did so in the Flino cup affair in which they showed their fine points in a dash along the flat and in a strenuous hill climb at the finish.

Motor cycles have had almost as big a show to win public applause as the automobiles. Nearly every meet held in this country this year has had motor cycle events on its card and innumerable records

have been made by Cissac, Lamberjack, Demeester and others. It's true France lost the international motor cycle cup over the Dourdan course, when the Austrian, Wondrick, finished first and lifted the cup held by Demeester, but this is about the only black eye France has received on her own soil in this line.

Abroad, French drivers have not done so well, the Florio cup especially being disappointing, for here an unknown—Raggio—cleaned up the cream of Europe, Duray, Hemery, Rougier, and Gabriel of the French team being obliged to take his dust, figuratively speaking. However, France expects to retrieve this disgrace in the Vanderbilt cup race in your country, despite the fact that the early talk makes Italy favorite. Of course, Parisians would feel safer if Thery and Caillois were in the American event, but still they are confident of the ability of Duray, Sisz, Wagner, Heath and Hemery to bring home the trophy; but what we will do with it if we

get it is a question that is worrying some of the confident ones. The Bennett cup is already a white elephant on our hands and if we get the Vanderbilt, too, we will be even more nonplussed—and busied.

The Mount Ventoux hill-climb mentioned above did not bring any too much glory to France, for her greatest rival, Italy, slipped in and carried off the premier honors. It was a brilliant affair, though, and the average Frenchman is too good



FINE STRETCH OF ROAD ON SIDE OF THE MOUNTAIN

TL1
M9

TAKING A CORNER
COLLOMB IN A MORS

a sportsman to deny proper credit to even his greatest foe. New records were set in nearly every event and Cagno and his Fiat were the stars of the meet. Cagno climbed the 21-kilometer slope in 19 minutes 13 seconds, which beats by 2 minutes the 1904 mark established by Rougier. The latter was in the same competition and on him rested the hope of the French contingent. He did nobly, but a better man was in the climb. Driving a big De Dietrich, Rougier broke his own record, but his time of 19 minutes 45 seconds was excelled by Cagno, driving his all-conquering Fiat.

Cagno showed himself a master hand at the wheel. No one will question his ability when it is considered that he climbed the 21-kilometer slope at the rate of 67.500 kilometers an hour. The ascent is 1,600 meters, so that he went up at the rate of 84 meters a minute, or nearly $1\frac{1}{2}$ meters a second. The Fiat car he drove is a four-cylinder 130-horsepower affair. It has four speeds, the transmission is by chains, the sparker is a Simms-Bosch and the pump is of centrifugal design.

In the runabout class De La Touloubre, in a Darracq, covered the distance in 25 minutes 39 4-5 seconds, an average of 49.135 kilometers per hour, beating the previous record of 29 minutes 59 seconds, held by Albert.

In the motor cycle class Lamberjack and Demeester triumphed on the Griffon. Lamberjack finished first in 25 minutes 48 1-5 seconds, an average speed of 148.837 kilometers an hour, beating the 1904 Ingilbert record of 32 minutes 20 seconds. Demeester was second in 28 minutes 35 1-5 seconds. Robert's machine skidded at the start, throwing the rider, who pluckily remounted and finished fourth in 39 minutes 33 seconds. He rode a Buchet machine.

There were several minor breakdowns in



THE SUMMIT OF MOUNT VENTOUX

the big car competition to mar the sport. Vitalis blew out a spark plug and finished on three cylinders. Collob did the same, while Hemery put on his brakes too abruptly and burnt out his clutch. De La Touloubre's machine nearly overturned early in the contest else he might have made a much better showing in the runabout class, which he, however, won.

Competition for the Hunziker regularity prize was keen. Medals were offered to the touring or racing cars making the best average speed over 1 kilometer, 5 kilometers and in the hill climb. In this competition Collob, in a Mors, scored 343 points in class for racing cars. In the touring type event Mottard, in a Chantiers de

la Buire, scored 266 points; Bablot, in a Berliet, 250 points and Fabre, in a Berliet, 205 points. Demeester carried off first for motor cycles, scoring 253 points on a Griffon. Lamberjack, on a Griffon, was second with 246 points, while Robert, on a Buchet, was third with 237 points.

The first day's contest resulted in the setting of two new marks—one in the motor cycle class and the other in the one for 8,000 francs cars. Ruamps made the 21 kilometers in 27 minutes 9 seconds, beating the previous mark of 31 minutes 17 3-5 seconds. He rode a Griffon motor cycle. Rivierre, in a Cotterau, made the distance in 56 minutes 15 seconds, the previous record being 1 hour 15 minutes 44 seconds.

The results of the second day were as follows: For large cars—Cagno, Fiat, first in 19 minutes 30 seconds; Rougier, De Dietrich, second in 19 minutes 45 seconds; Vitalis, Rochet-Schneider, third in 22 minutes 27 1-5 seconds; Collob, Mors, fourth in 22 minutes 59 2-5 seconds; Lapertot,

Automoto, fifth in 28 minutes 29 3-5 seconds. De La Touloubre, in a Darracq, won the runabout event in 25 minutes 39 4-5 seconds. The finish in the motor cycle class was:

Lamberjack, Griffon, 25 minutes 48 1-5 seconds, first; Demeester, Griffon, 28 minutes 35 4-5 seconds, second; Pons, Magali, 37 minutes 53 seconds, third; Roberts, Buchet, 39 minutes 33 seconds, fourth; Ruamps, Griffon, 54 minutes 58 seconds, was fifth at the finish.

That the Mount Ventoux contest was an unqualified success is admitted on all sides. In previous affairs only speed cars were allowed to compete, but this time the touring cars and other types were admitted. The summit was crowded with vehicles of every descrip-



LAMBERJACK ON A GRIFFON MOTOR CYCLE

tion known to the motor world. One fatal accident marred the meet. Marcel Rol, a photographer of motoring events, who has done nearly all of MOTOR AGE's work in this country, was thrown from Collomb's car and killed. He was riding down the slope with the driver of the Mors when the spill occurred, Collomb and his machinist escaping with a few bruises, while Rol's skull was fractured, death resulting instantly.

From Vienna comes the news that for the third consecutive time Braun won the Semmering hill-climb on the 17th instant. In 1903 he scored his first success, driving Clarence Gray Dinmore's 60-horsepower Mercedes. The following season, driving Mr. Dreher's 80-horsepower Mercedes he won again. This year, in a 100-horsepower Mercedes, he again won in the racing class, accomplishing the climb in 7 minutes 50% seconds, an average speed of better than 75 kilometers an hour up a grade of 10 kilometers, with average rise of 1 to 25. Braun's time last year was 8 minutes 11% seconds. Zettlinger, in a Peugeot, won in class I in 20 minutes 40% seconds; Arnold, in a Mercedes, won class II in 15 minutes 16 seconds; Hieronymous, in a Spitz, won class III in 13 minutes 23% seconds; Mueller, 40-horsepower Mercedes, won class IV in 13 minutes 33 seconds time.

Cissac has astonished the motor cycle world by covering 90 kilometers, lacking only 105 meters, in 1 hour, while his time for 100 kilometers was 1 hour 6 minutes 46% seconds, which sets a record the experts believe will stand for some time. The test was made in



GIRY ON A SVELTE
ROUNDING THE SHARP
TURN ON THE ASCENT



GENERAL VIEW NEAR TOP OF THE MOUNT

however, to turn the mind of the French public from road racing to the more sensible pastime of touring. The success met with in the contest for the Pyrennes cup here in this country and the enthusiasm shown over the Ghdden in America, the Herkomer in Germany and the other affairs like them has convinced the powers that be that there is a great future in store for this department of the sport. Preliminary interest in touring started with the sportsman match between Meyan, of France, and Siddeley, of England, in which a draw decision was given. M. Meyan then proposed that next year an international tour be arranged in which all the leading countries could be represented. Since then others have taken up the idea and it really looks as if next year the Automobile Club of France would promote an affair of such magnitude as will make even the most enthusiastic gasp with surprise. The route talked of includes all the principal countries of Europe. As yet, though, the affair is in embryo.

Another contest talked of is a race in which the tire instead of the car will figure. It has been demonstrated in road racing that unlimited speed can be gotten out of the car, but that the tires are unable to stand the strain. A race in which the tire makers would be obliged to furnish the sinews of war would prove interesting.

Hill climbs will undoubtedly continue in popular favor, while contests for motor cycles and tri-cars will be kept on the motoring calendar.

Not the least interesting competition in this country was the tour of commercial and military machines over roads in the vicinity of Paris. The test continued for 2 weeks and the work of the fifty competing vehicles was followed throughout with the keenest interest.

the Parc Des Princes. The Thomas record of the previous day in the Hydra cup contest was beaten by 3 minutes. Thomas made his record on an Aleyon machine fitted with a Buchet motor and Dunlop tires. His time for 100 kilometers was 1 hour 10 minutes 34% seconds. Cissac's test, on account of not having been made according to the Hydra cup rules, won him no prize.

With the close of the season the French motoring public is looking ahead to next year. The complications arising over the refusal of the Automobile Club of France to longer compete for the Bennett cup has upset all calculations. It is expected,



CAGNO IN FIAT NEAR THE SUMMIT

VANDERBILT FIELD IS LINED UP

Trial Drawings Give Germany Right of Way and Jenatzy Is Selected To Start First—Baron de Caters Withdraws and Campbell Is Substituted—Accident to Chevrolet

New York, Oct. 3.—There was a babel of voices and a confusion of tongues at the Automobile Club of America last night, where entrants, drivers, backers, tradesmen and race followers gathered for the final naming of the teams and the drawing for starting positions in the second international contest for the Vanderbilt cup. Lancia, fat and jolly; Nazarrì, tall and dignified; Sartori, swarthy and morose, and Duray, blond and of the rah-rah college boy type, chatted together volubly in one corner. In another Christie, tall and fair-haired, and Tracy, argumentative and nervous, smiled at the over-confidence of the visitors, who were calmly leaving the Americans out of their calculations. The two barons—de Turckheim, Massenat and Neubauer—discussed the chances with dignified repose. Senor Conill, who won the Havana cup, was on hand to learn all he could and possibly put up an entry or two for next year's Cuban race. All the importers were there, each seeing no other possible winner but his own car. Newspaper men scurried about, hustling for interpreters for their interviews.

Behind closed doors the commission was considering the substitutions made necessary by the cabled withdrawal of Baron de Caters and the smash-up of the 120-horsepower Fiat by Chevrolet. Baron Turckheim was in the conference as general representative of the European clubs under the deed of gift. The result was that S. B. Stevens, as a member of the German club, was permitted to enter the 90-horsepower Mercedes, which he drove at Ormond, with A. L. Campbell, who piloted his Mercedes in last year's race, as its driver. On hearing of the Chevrolet accident Major C. J. S. Miller, with characteristic sportsmanship, had wired Hollander & Tangeman offering his 90-horsepower Fiat of track fame. As the Italian club had delegated the naming of its team to Hollander & Tangeman there was no question of their right to substitute Major Miller's car.

The substitution settled, Chairman Morrell announced that there would be a preliminary drawing for order of drawing, followed by a final drawing. Without much ado it was decided that Baron Turckheim should draw for France, Robert Graves for Germany, E. R. Hollander for Italy and A. L. Riker for America. Graves was lucky. He drew first draw and first position for Germany. France got second draw and second position, America last draw and third position, and Italy third draw and last position. So it was to be Germany, France, America and Italy as the order of the teams.

It was left to each team to determine the

order of the starting of its own men. France decided to abide by the order of finish of the French trials—Duray, Wagner, Sis, Heath, Hemery. The Americans granted Dingley and Tracy the first and second positions they won in the eliminating trials and decided the order of starting of the substitutes, Christie, Lytle, White—by lot. Germany and Italy named their starting orders arbitrarily and naturally chose Jenatzy and Lancia as leaders. All this made Jenatzy, Duray, Dingley and Lancia the pacemaking quartette for the race, and a lively bunch of four they will be for the others to chase.

The race will be started as near to 6 a. m. as possible, though it will probably be ½-hour later before the odds and evens are lined up on opposite sides of the road enacting Wagner's one, two, three; ein, zwei, drei; un, deux, trois, and uno, duo, tre, which will send them away at 1-minute intervals on their 283-mile journey.

There is a story afloat, by the way, that Wag is rehearsing the count for the start at a school of languages. The spectators will have not much over 5 minutes to wait after Sartori gets a move on him before the leader of the first lap will be hailed by Prunty's "car coming!" Will it be Jenatzy, Duray, Dingley or Lancia?

Though the majority of speculators and prophets are inclined to make Lancia the favorite, there are others, who do not forget that Hemery won the Ardennes circuit or that Duray has made decidedly the best average showing in this year's racing abroad. By the way, the score of the prominent Vanderbilt cup candidates this year among the Europeans has been as follows:

	Bennett	French trials	Ardennes	Florio
Duray	6	3	7	2
Lancia .....	.	.	.	3
Hemery .....	.	9	1	4
Nazarrì	3	.	.	6
Wagner .....	.	4	4	8
Sis .....	.	5	.	.
Heath .....	.	6	5	.

There has been little practice on the course of late. The Europeans, barring Keene and Jenatzy, have not yet had their cars long enough out of the custom house to get them in readiness for speeding the practice hours. The course was slippery today from last night's rain and White, Keene, Jenatzy and Cedrino contented themselves with cautious going. By the end of the week practice will be in full swing and then there will be actual times on which to base prophecies.

Saturday's steamers brought five Vanderbilt drivers and their cars. Hemery and Wagner, the Darracq pair on

the French team, and John B. Worden, who will pilot his own Mercedes as a member of the German team, came by the New York. La Lorraine bore Sis, Renault and Duray, De Dietrich, of the French team. On this ship also came Baron Adrien de Turckheim, who will represent the sports committee of the Automobile Club of France at the race.

All the drivers were eager to see the route they would have to travel and yesterday found all of them making circuits of the course in touring cars. Their verdict enthusiastically coincided with that of Lancia and Nazarrì, of the Italian team. They pronounced it, of course, far superior to the Auvergne circuit. They praised its fine surface, easy grades and gentle curves, though, of course, they saw that the right-angled curves and the two S jogs would have to be negotiated with caution. All expected before the week closed to have their racing cars ready for the early morning practice spins. They will take up their quarters on the course at once and begin the study of the route in touring cars.

Hemery and Wagner will be at the Glen Head hotel, which has been engaged in its entirety for them and their mechanics. Duray will be housed at Krug's, near which place Jenatzy is already stabled. Nazarrì and Lancia are already at Porrier's hotel, with Cedrino, Chevrolet and Sartori, of the Italian team, having had the entire place leased for them by Hollander & Tangeman.

A bit of bad luck befell the Italian team during this morning's practice, whereby the 120-horsepower Fiat, which Chevrolet was to drive in the race, was put out of the running. In driving the car at high speed down the road near the W. K. Vanderbilt, Jr., estate, Chevrolet encountered a forgotten turn on the road. In making a sudden switch to negotiate it, the car skidded, struck a telegraph pole and then a tree, completely turned turtle and was utterly wrecked. Both Chevrolet and his mechanic, Henry Schutting, a Swiss, were hurled from the car. Chevrolet escaped with a few bruises. Schutting was not so lucky, for when the ambulance, which came to his rescue, reached the Nassau county hospital at Minerva, the physicians found that three ribs had been broken. The plucky Swiss declares, however, that he will be up, about and ready to take his seat beside Chevrolet in the big race. It is now proposed to shift Chevrolet to Major C. J. S. Miller's 90-horsepower Fiat, which he has driven with record-breaking success on the track circuit this season.

With the arrival of Baron de Turckheim comes the interjection of the present European controversy over the continuation of these international road racers. The baron is quoted as prophesying that this will be the last race for the Vanderbilt cup and the probability of the trophy being changed to one for reliability competition. Americans here received this suggestion with smiling incredulity and are taking off their hats to the nerve of the foreigner. It is realized

that France may not care to run the race in France, should she prove a winner, and that, perhaps, Italy and Germany may find their own races all they care to attend to at home, but there is no other expectation than that the cup will be returned to the commission to be raced for again on Long Island next year in the event of a European contest for it being either undesirable or impracticable, should a foreign team win it. Mr. Vanderbilt gave the cup for a perpetual trophy and to encourage American makers. France may think it has gotten all it can from international racing. America has not, though, and modestly believes it is just beginning to learn enough to play the game further with a bit more hope of success. No one fears that another Vanderbilt race will not be run. There are some even with the temerity to think that America has some chance to name next year's course itself.

Of the American cars only the White is now left on the course. Walter White makes a daily round of the route with it in the hours set apart for racing car practice. The two Pope-Toledos were sent to the factory last week for a final overhauling. It is planned to send the Locomobile to Bridgeport today. The Christie has not been reported on the course during the practice hours for some days.

CONTESTANTS STILL COMPLAIN

New York, Oct. 1.—Discussion of the action of the racing board in the matter of the selection of the American team has continued with warmth since the promulgation of its choice. Even among those who expressed confidence in the patriotic sincerity of the board and admired the boldness of its play in deciding to take a gambler's chance on one or more of the quintet of undoubted high speed cars surviving and evolving a winner, the way the board went about it is pronounced inexcusably raw and without defense from a technical or diplomatic standpoint. Whatever reason there may have been for dropping the two touring cars on the ground that at their best they had no chance of winning, the opinion is general that the Thomas had won an undisputed right from its show, not only of speed but of endurance, to retain the place on the team it fairly won.

Harry Houpt wrote a vigorous letter of protest, to which Chairman Morrell sent the following reply:

Your communication of the 27th inst., addressed to the racing board of the American Automobile Association, received and has been carefully considered by me. When your entry was received for the William K. Vanderbilt, Jr., cup race of 1905, it was upon the expressed condition that if there were more than five entries from the United States, the racing board of the American Automobile Association should decide which of the entries might compete in the cup race. The eliminating trials held over the course on the 23d day of September, 1905, were held pursuant to that condition, and with the expressed proviso that the commission reserved the right to select the five cars which, in their opinion, would be most likely to win the William K. Vanderbilt,

Jr., cup race. While the 1905 course might try the staying qualities of the car, it admits that extreme speed which must be possessed by any car that stands any show whatever of winning. Consequently the first essential demanded by the commission is speed, which, coupled with endurance, could win; but endurance minus speed has no chance whatever. Accepting your statement in regard to the broken battery box, still the commission was not satisfied with the general showing of the car and does not believe that it would stand as good a chance of winning the cup as the other cars selected to compose the American team. I regret sincerely that you should feel that you have been treated with any discourtesy by the commission, but the occasion called for immediate action in order to give the teams selected an opportunity to commence the necessary preparations at once. We had received and carefully considered the written report of your driver, Montague Roberts, and when you asked the commission for a personal hearing, the vote had already been taken and the team selected.

No formal protest was made by the Royal Motor Car Co. V. E. Minich, general manager of the Haynes Apperson Co., did, though.

After going into details concerning the rejection of the Haynes, Mr. Minich goes on to give his reasons why it should have been accepted. He said in part:

I feel that a word or two regarding our car and its ability to creditably represent the American automobile industry would be in place. While it is true that the car which we entered and drove is simply one of our 1906 stock touring cars, it does not by any means follow that it has not sufficient speed to stand a good chance to win the cup. This car has actually done better than 65 miles an hour on the ordinary pikes around our factory, and on suitable roads will do better than 70 miles an hour. The mere fact that we did not make as fast time as two or three other contestants at the eliminating trials does not signify. We have realized all along that it is a matter of great importance to our company to have the opportunity to show the world what a fast and reliable car we are building. I knew that if our driver put the car over the course at any think like its best speed he would be taking

unnecessary risks, and my last word to him before starting was to caution him to drive slowly and carefully, timing himself only to finish among the first five. Had we realized that selection would be based upon the extreme speed that could be made in these trials his instructions and the outcome would have been different.

Mr. Minich also told of the mishap caused by an oiler going through the fly-wheel, necessitating two stops and a loss of 10 minutes.

WERNER WITHDRAWS

New York, Oct. 4.—Special telegram—Clarence Gray Dinsmore, who with George Heath arrived yesterday, canceled Werner's entry to the Vanderbilt race on account of his being disappointed in getting his racing Mercedes from the factory in time to ship it. Werner was accordingly left behind.

Secretary Batchelder has telegraphed Henry L. Bowden suggesting that he substitute Flying Dutchman II, with Basle as driver. This is the 90-horsepower Mercedes with which Basle scored the former 10-mile track record at Providence and not the double-engine Mercedes which made the 32½-seconds mile world record at Ormond. The latter, being hastily built in America, would not be eligible.

All entrants for the race are now here. The Europeans are getting their cars ready to begin practice later in the week. Keene and Jenatz, of the German team, are the only foreign candidates practicing with racing cars. The Fiats and Darracqs were clogged with oil from the Florio race and had to be taken apart and cleaned. Heath is equipped with two Panhards and Duray with two De Dietrichs. White makes daily trips over course during practice hours, covering two or three laps each day at an average rate of 32 minutes. Lancia, Hemery and Duray are the betting favorites with those who think they know.

STARTING ORDER IN THE VANDERBILT CUP RACE

Start	Driver	H. P.	Car	Entrant	Team
1	Jenatz	120	Mercedes	Robert Graves	Germany
2	Duray	130	De Dietrich	M. De Dietrich	France
3	Dingley	50	Pope-Toledo	A. L. Pope	America
4	Lancia	120	Fiat	Hollander & Tangeman	Italy
5	Worden	120	Mercedes	John B. Worden	Germany
6	Wagner	80	Darracq	Darracq Co.	France
7	Tracy	120	Locomobile	H. E. Thomas	America
8	Nazzari	120	Fiat	Hollander & Tangeman	Italy
9	Campbell	90	Mercedes	S. B. Stevens	Germany
10	Sisz	90	Renault	Renault Brothers	France
11	Christie	60	Christie	James L. Breese	America
12	Cedrina	120	Fiat	Hollander & Tangeman	Italy
13	Keene	120	Mercedes	Foxhall P. Keene	Germany
14	Heath	120	Panhard	Panhard & Levassor	France
15	Lytle	75	Pope-Toledo	A. A. Pope	America
16	Chevrolet	90	Fiat	C. J. S. Miller	Italy
17	*Werner	120	Mercedes	C. G. Dinsmore	Germany
18	Hemery	80	Darracq	Darracq Co.	France
19	White	40	White—steam	R. H. White	America
20	Sartori	90	Fiat	A. G. Vanderbilt	Italy

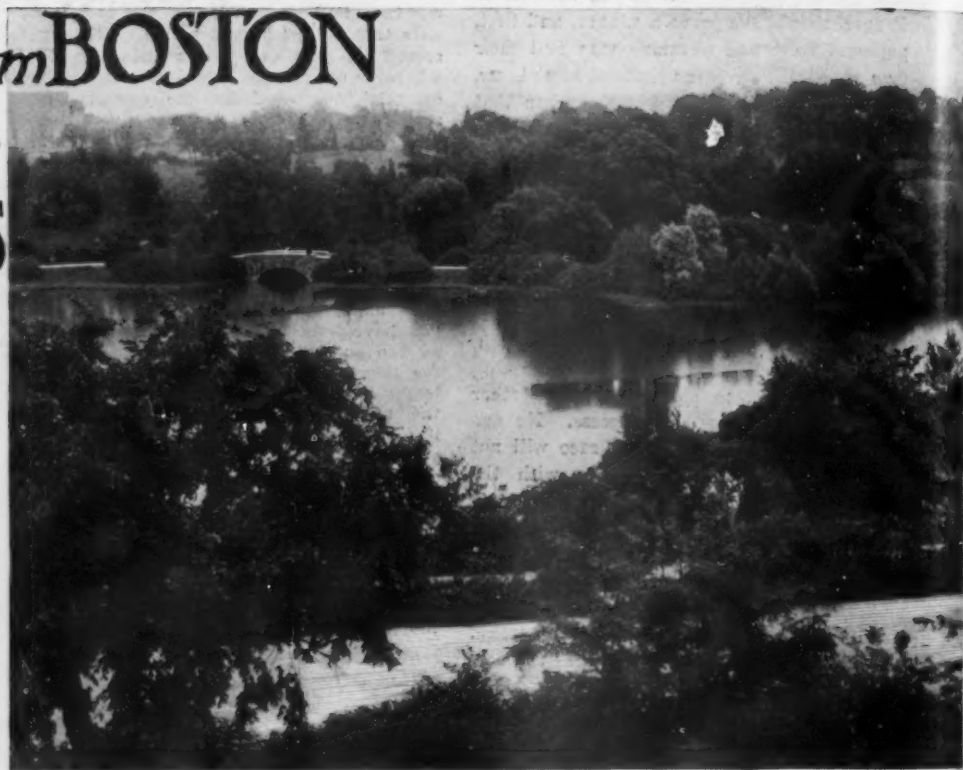
*Withdrawn

TOURING *from* BOSTON to the BERKSHIRES



ONE of the Pilgrim fathers, it is related, upon the approach of the vessel to the shores of Massachusetts, cried out, on beholding the beauty of the scenery, "This is paradise." So it may be truly said today that Massachusetts is the automobilist's paradise. In that state the tourist can find on every side patriotic, intellectual and scenic attractions such as are offered by no other state in the union. Massachusetts, an Indian name meaning "the land of big hills," displays at almost every turning tablets and monuments that recall the stories of great men, as well as the importance of great historical events.

Here are depicted the steps that led the colonies to provinces and from provinces to republic. Here may be seen the homes of those intellectual American authors who have placed America in her high position in the literary world. From Boston the hub of eastern motorists, one can in a few hours be in the heart of the Berkshire hills, where at an altitude of 2,500 feet he can bid defiance to the fiery glances of old Sol. Tiring of this altitude, the motorist can also in a few hours be enjoying the latitude—not geographically—of some seaside resort. A natural feature which gives beauty to the scenery of Massachusetts is specially observable in



THE ROAD AT BROOKLINE, MASS., WINDS ALONG PAST OLMSTED POND, CLOSE TO THE NARROWS

the multiplicity of fresh water lakes, called ponds. These ponds were favorite places with the aborigines who built their little steam baths on their shores.

In a word, in Massachusetts are blended together in all their most beautiful forms mountain, valley, river and seashore. Poets have sung of its rivers. Of one, the Connecticut river, Dr. Dwight has truly said: "No watery gleams through fairer meadows shine; Nor drinks the sea a lovelier stream than thine."

But all these inviting features would avail nothing to the motorist were that sine qua non absent—a good system of roads. What state in the union can pre-

sent such an extent and splendid condition of state and other roads as does Massachusetts? It now has over 600 miles of well-laid state roads, which are being continually extended. These roads are inspected sufficiently often to discover and remove defects in a reasonable time after they appear. These roads are very different from those that existed at the time that E. Everett Hale's friend asked about the condition of the roads to a certain town. The questioned countryman replied, "Wall, naow! Both roads are bad; whichever ye take'll be a durned sight wors'n the other. I wouldn't advise you to go on any at all."

Massachusetts, in consequence of its splendid system of roads, its magnificently varied scenery, the seaside, city and rural pleasures it offers, the artistically built towns and cities, thirty-six of which are within a radius of a few miles from the state house, Boston, has become an intensely automobile state. There are now over 9,000 automobiles registered in the state and this is a larger number, in proportion to the population, than exists in any other state. All over the state the best accommodations are at hand for man and machine. There are prosperous automobile clubs—two in Boston, each having a membership of over 300, with the ranks increasing steadily from day to day.

NO PUNCTURE IN 1700 MILES

Mr. and Mrs. F. S. Dey have returned to Buffalo from a 1,700-mile automobile tour through Canada. The first thing Mr. Dey said when he arrived was: "All the way without a single puncture. Never used my pump except on the front tires."



JAMAICA WAY, BROOKLINE, MASS., CURVES PAST SHADY WOODS AND PALATIAL HOMES

COUNTRY FAIRLY ALIVE with TOURISTS



that the trip was devoid of accident. The beautiful Canadian country was thoroughly enjoyed by the party, especially the farm-lands that are, so prevalent in the north. Gasoline was bought for 50 cents a gallon in some of the towns, and it was considered a favor to get it at that or any price.

NOW ON LONG TOUR

One of the longest trips overland ever attempted by any motorist of the south, is a month's tour of the east which has been begun by John T. Landis, of Nashville, Tenn., president of the Landis Banking Co., ex-president of the Southern Automobile Co., and one of the most prominent stock brokers of the south, in his White steamer. Mr. Landis went to Cleveland via Louisville and Cincinnati and from Cincinnati to Buffalo, across the Berkshire hills over to Boston, and will reach New York city after a tour of that state in time to witness the Vanderbilt cup race on October 14. Mr. Landis is accompanied by B. F. Bell, formerly manager of the Southern Automobile Co.'s garage. At Cleveland, Mr. Landis secured the delivery of his 1906 White steamer and the remainder of the distance is being done in the new car. He expects to reach Nashville on the return trip the latter part of October, the latter part of the trip being through eastern states.

AND THEN INTO FULL VIEW OF LEVERETT POND, NESTLING AMID RURAL BEAUTY

Mr. Dey drove a 40-horsepower Pierce Great Arrow car. Mr. and Mrs. Dey left Buffalo on August 28. Driving from Buffalo to Toronto they passed through some of the best agricultural lands of the dominion. They spent 2 weeks in and about Toronto during the fair. From Toronto they went by boat to Kingston and then drove through Cananoqua, Brockville and Smith's Falls to Ottawa where they spent a week during the Ottawa fair. From Ottawa their route led to L'Original, Carillon, Saint Hermos, Belle Riviere and Saint Scholastique to Montreal, where they spent 5 days taking some side trips in the delightful country of the French Canadians. From Montreal Mr. Dey drove to Vaudreuil, Coteau, Cornwall, Prescott, Brockville and Gananoque, to Kingston whence he went by boat back to Toronto and then home.

THREE WEEKS IN CANADA

Mr. and Mrs. P. L. Gregoire, Miss Grace Sheridan, Miss Katherine Welch and Chauffeur Peter F. Cote, of Lowell, Mass., returned recently from their Canadian trip, which lasted about 3 weeks and covered a distance of between 1,600 and 1,700 miles. The Canadian country was well covered and Montreal, Quebec, Three Rivers, St. Anne de Beaupre and several other places were visited. The party had many novel experiences in their journey through the farming districts, the natives crowding around their machine in open-eyed astonishment. Many of these had not seen an automobile before, to which fact was due their surprise and interest. The party found that automobiles were not in great favor in the northern country and had not attained the popu-

larity that they have in the United States. In Quebec there are only thirty machines, while in Montreal there are not more than fifty. One of the troubles of touring through the farming country was due to the horses that were met with. Not being used to automobiles, the machine was forced to stop often for the purpose of letting the animals pass. While in Canada the party made the ascent of many of the hills and mountains that had never been climbed before by an automobile. The Gregoire cars, a Marion touring car, stood the test without a mishap of any serious kind. On the return trip a puncture was sustained on a road where macadam was being laid, but other than



A SHADED BEND IN MASSACHUSETTS ROAD NEAR JAMAICA PLAIN

ANALYZES THE FOREIGN TRADE

French Writer Warns His Countrymen that Their Market in England Is Menaced—Britons Refuse to Buy Second-Hand Cars from Across Channel—Balk at Big Prices

London, Sept. 23—J. B. King, the secretary of the British Empire Motor Trades Alliance, an association of British manufacturers, whose object it is to further the interests of the British automobile trade in opposition to that of any other country, has issued to the press this week an article which is certain to obtain very widespread notice and comment. It is a literal translation of an initiatory epistle addressed to the French motor car trade by Georges Prade, one of the best known writers on the French automobile press, whose contributions have done much to make *l'Auto* the leading French organ of the sport. It is a somewhat remarkable thing that all the facts and figures which Prade uses to enforce his arguments and warnings, have been culled from the pages of the British motor press, yet until he marshaled them, labeled them and summarized their significance, only a few acute observers on this side had read their lesson aright. This is that Great Britain is the largest and wealthiest market open to the world's automobile trade, and that it transcends in importance to the French manufacturer even that of his own country. These facts had been stated by one or two observant trade writers even before the relative statistics appeared, upon which Prade has built his case. But his article has turned surmise into certainty. How much more important and popular automobilism is in Great Britain than in France is shown by the facts which Prade parades for the benefit of his self-satisfied countrymen, to the majority of whom the article has come as a disagreeable surprise. The number of motor cars registered for taxation in France is put at over 17,000; the number of cars similarly registered in Great Britain is over 32,000. For the 7 months of 1905, ending with July 31, Great Britain imported 3,857 motor cars of the value of \$8,184,000, or equal to 6,642 cars for the 12 months, of the value of \$13,996,800, or an amount greater than France will have expended on its own motor market over the same period—from January to August.

That is the portion of Prade's argument as it directly affects the French motor car manufacturer, whom he implores to study to the utmost the requirements of their English customers. But more startling still is his estimate of the manner in which Great Britain has tackled the task of supplying its own demands in the motor line. He estimates from the official British registration figures that, after deducting those representing the imported motor cars, British motor car manufacturers sold on the British market in 7 months 9,800

cars, or equal, in his view, to 18,000 for the year 1905. Prade, having proved to his satisfaction that the average value of the cars imported into Great Britain is \$2,098.96, assumes that this is about the average value of the British-built car, and so finds that Great Britain will have spent \$38,102,000 in 1905 on its home productions, which, added to \$13,996,800 worth of imported cars, produces \$52,159,200 as the trading value of the British motor car market for the current year. He contrasts these figures with the value of the American market to France, greatly to the disadvantage of America, which seems to have been, in his mind, unduly attracting the French manufacturer as a field for his activity. He endeavors to warn his countrymen of the danger to themselves which the rapid development of the British-made motor car trade constitutes, and seems to imagine that by increased attention to this market, rather than by opening up in America, the French motor manufacturer will be serving his interests best by hindering British expansion. Altogether he has produced an article which has caused little less than consternation in French circles, and has evoked the greatest surprise in Great Britain.

Taken broadly, his arguments and deductions are sound; taken analytically his figures and statements require reconstruction. There are not 32,000 motor cars in use in Great Britain; Great Britain will not have imported \$13,996,800 of new motor cars, nor will our native manufacturers have sold \$38,402,400 worth to their countrymen this year. These statements can be made with confidence. Prade, in estimating the value of our imports, has lost sight of the fact that every car which comes to these shores figures in in the returns which he quotes, but those returns do not state how many of them are British cars whose owners have been touring in them abroad or foreign visitors touring in this country, nor do they state how many of them imported into the kingdom for sale are second-hand machines.

Quite a large second-hand trade has been done between France and Great Britain up to quite recently. For some time France simply emptied its second-hand cars into London. But that trade is easing off, for the British automobilist is now discarding old or unsatisfactory cars in quantities sufficient to absorb the demand that has had to be supplied from France. This change is bound to be felt in France, if it has not already been. It was because a free, if not a good, market existed for their discarded cars that induced, or enabled,

French motorists to purchase the fresh design produced year by year by their own designers. At the same time this loaded up our market with their discarded stuff against our British manufacturers, who had to compete against it. The absence of that outlet cannot fail to congest the French market to some extent, and, with the British market shrinking by reason of the advance of the native British manufacturer, the French trade is faced with the probability of a crisis. Its arrival is merely a matter of time, its extent only limited by the progress of rival nations. Prade has simply deciphered the handwriting on the wall. France cannot continue to exercise the same influence or hold the same position in the motor world if its productive power is suddenly to be reduced by one-half. Prade evidently thinks that his countrymen are unwise to pay so much attention to the American market, but he probably overlooks the fact that in doing that they are endeavoring to find a way out of the situation which will be created when the British trade walls out its French rivals in their present largest market. You in America are better judges than we can be how far that move on the part of the French trade can be successful; but even we can see that any such success obtained must only be temporary. It really looks as though the automobile sun of France had begun to set and that when it goes down it will be on a veritable Austerlitz of trade.

It has been freely stated that only four or five French motor car manufacturers have been making profits this year and the names given are Renault Brothers, Panhard & Levassor, De Dion-Bouton, Charon, Girardot & Voigt, Gladiator and possibly Richard-Brasier. In this country the number is equally small. Argyle, Daimler, Wolseley, Humber, Napier and Thornycroft alone have any figures worth considering; the majority of others are simply struggling to obtain a footing on the market. What profits have been made in these cases mostly have gone to the retailer. The whole situation is one dominated by scarcity of hard cash—perhaps a blessing in disguise, for were capital at the command of these struggling concerns the expansion of trade resulting would probably be entirely inadequate to justify the outlay and disappointment and loss would ensue to the unlucky investors.

The explanation of the discrepancy between the 32,000 motor cars registered and the number in use—probably less than 30,000—is that when a second-hand car passes from one purchaser to another it is generally freshly registered, no trouble being taken to annul the old number, which lapses on December 31. That the cars produced and sold out of British factories this season will amount in value to \$38,102,400 is computed on an average valuation of \$2,098.96. That is much too high. The foreign cars imported or brought into

this country are considerably higher powered and higher-priced than the majority of the native cars selling. An average of \$1,601 would be much nearer the mark, for you can get a very serviceable British-built four-cylinder touring car chassis 10-12 horsepower to carry four on the London market for \$1,458, and that is likely to be the popular standard and price in 1906.

The market here, as well as in France, is gradually altering. The demand for cars of from \$3,645 to \$4,860 is fairly satisfied and only renewals are to be expected, consequently firms that have been competing for this market must of necessity produce something lower-priced if their works are to be fully employed or if they want to progress or prevent younger competitors from overshadowing them.

AGAINST FURTHER CONTESTS

New York, Oct. 4—Special telegram—At a meeting of the executive committee of the National Association of Automobile Manufacturers held today the following resolution was adopted by an unanimous vote:

Resolved, That this association is opposed to the holding of any further contests before the end of the present year, and that the contest committee be requested to consider what contests, if any, would be advisable during 1906.

The contest committee, consisting originally of Messrs. Waldon, Clifton and Davis, was increased to a membership of five by the addition of Messrs. Kittridge and Pope. It was stated at the meeting that the appeal in the licensed test, case commenced some time ago in New Jersey, will likely be heard within the next 5 or 6 days. Professor Lucke and Mr. Cashman, representing the New York School of Automobile Engineers, appeared before the committee and explained at length the details of the enterprise. The committee decided to return to the exhibitors at the Chicago show, who have exhibited at previous shows in proportion to the amount of space rental paid by them, half of the net proceeds of the exhibition.

IOWANS HAVE PARADE.

Cedar Rapids, Ia., Oct. 3—This is automobile day at the carnival. Sixty cars of all makes and models journeyed to the rendezvous to take part in a gala parade. With the visitors and the Cedar Rapids owners considerably over 100 machines were in line. After making a tour of the principal streets and avenues the parade concluded at Athletic park, where the annual carnival was in session. Several of the visitors who came to take part in the parade suffered torn and mutilated tires from barbed wire and other obstructions placed in the highway, presumably by the farmers. The Iowa towns which had from fourteen to one representatives in line were: Waterloo, Iowa City, Cascade, La Porte City, Newton, Des Moines, Walker, Belle Plaine, Maquoketa, Washington, Cedar Falls, Reinbeck, Nashua, Clarksville, Delmar, Oasis, Worthington, Vinton, Clinton, Sumner, Traer, Britt, Dysart and North English.

SNEERS AT CUP STORY

France Makes Light of Rumor That Bennett Trophy Will Be Put Up for Touring Contest

Paris, Sept. 23—James Gordon Bennett's recent visit to Italy, when he attended the Brescia meeting, has started the rumor along the boulevards that the donor of the international cup, which has now been raced for six times and which is now in possession of the Automobile Club of France, has decided to take it back and offer it to the Automobile Club of Milan, to be contested for in a big touring competition next year in connection with the universal exposition at Milan at the inauguration of the Simplon tunnel. According to the gossips, Mr. Bennett conferred with the officials of the Milan club, who, encouraged by the success of their tour last year, were planning another for next summer, with \$10,000 in prizes hung up. The result of this confab is said to have been the proffer of the Bennett cup for the tour, which induced the Milanese to raise the prize money from \$10,000 to \$30,000, in addition to the cup.

In a measure this announcement was a bombshell to the French, but after mature deliberation the wise ones made light of the rumor, pointing out that in the first place the cup is not Mr. Bennett's to give. It has been won by France and at the present time is in the custody of the Automobile Club of France, which, while refusing to contest for it longer, has not as yet handed it back to its donor. It would be unlikely, it is figured, that Mr. Bennett would so far forget his sportsmanship as to promise the trophy for a touring competition without at least consulting the present trustees.

The first rumor of the proposed action came from Milan direct instead of emanating from the officials of the Automobile Club of France, which would be most likely under the circumstances. This in itself is enough to cast suspicion upon the authenticity of the tale. The Automobile Club of Milan has been knocking road racing and boosting its tour and it is presumed here that this story about the Bennett cup was concocted to knock another prop out from under racing.

France having refused to compete again for the Bennett cup as a racing trophy and Great Britain's echoing these sentiments, does not necessarily mean that these two great nations would consent to the altering of the cup conditions, for France has the vote that counts and until Mr. Bennett gets the consent of the club the critics here do not see how it is possible for Italy to cut in and get the cup for a tour prize. Italy's right to hold the 1906 race for the Bennett cup in view of the fact that she finished such a good second, is not questioned. It is the tour story that makes it seem unlikely.

Bearing out the above belief comes a characteristic interview with James Gordon Bennett himself, who returned to Paris last night, in which he denied that he has decided to alter the terms of competition.

"I no longer own the cup," said Mr. Bennett, "and it belongs to the Automobile Club of France, to which it was given to encourage the manufacture of automobiles. Its disposition will be left to the international conference, which will meet in Paris in December. I may say that I am not opposed to the giving of the cup to a great international endurance test."

TRADE HIRES METALLURGIST

New York, Oct. 3—Announcement was made yesterday that a group of the biggest American makers here have entered into an arrangement with one of the biggest concerns in the steel industry, to carry forward scientific experiments, until it has been ascertained, positively, just what grades and compositions of metal are best for the production of a perfectly safe and reliable car. Under the new arrangement a man accounted the cleverest metallurgist in the country and employed by the steel interests, will work together with a metallurgist employed by the makers to ascertain just what grades of material are best for each feature of construction. The concerted action was taken by the group of manufacturers who are members of the Association of Licensed Automobile Manufacturers. Henry Souther will be the metallurgist representing the automobile makers and he will work with the steel interests to solve, not only the question of the best grades of steel for engine and body parts, but also the best compositions of metal for bearings and all other purposes.

PLAN CONSOLIDATION

Hartford, Conn., Oct. 2—A proposition is soon to be brought forward for the amalgamation of the Automobile Club of Hartford and the Hartford Yacht Club. The automobile club is to have temporary quarters for the winter and the yacht club is soon to build a swell new club house in Hartford. The club now has a house in Hartford which is to be rebuilt, while elaborate stations with quarters and dining service are supplied at Fenwick, New London, Crescent Beach and Fishers Island. The yacht club is 11 years old and is the fifth largest in America in point of members and size and pretentiousness of fleet. Each club will retain its original name.

JUDGMENT AGAINST BOYD

Washington, D. C., Oct. 3—Special telegram—The government today obtained judgment for \$9,000 against James W. Boyd, president of the Columbia Automobile Co. Judgment was also entered in favor of the government against certain automobiles and other personal property belonging to Boyd. The property will be sold at auction to satisfy judgments.

New York Office
29 West 42nd Street
London Office
American Publication
Bureau 55 Manor
Park Road Haverstock
N.W.

MOTOR AGE

**309 Michigan Avenue
CHICAGO**

**Published every Thursday by the
Trade Press Co. N.H. Van Sicklen
Manager - Telephone Harrison 4410**

*Subscription two dollars per year. Foreign subscription four dollars
The Western News Co. of Chicago and its branches
supply newsdealers. Entered at the
Chicago postoffice as sec-
ond class matter*

Member National Association of Automobile Manufacturers, Chicago
Trade Press Association and Official Organ of the American Motor League



IS ROAD RACING DOOMED?

WITH the running of the Vanderbilt cup race a week from Saturday the last of the big automobile road competitions of the year 1905 will have been completed and the case of Racing vs. Touring will go before the Court of Public Opinion for a final verdict. The evidence produced during the summer months has been favorable to the touring side of the case and those who profess to be able to read the handwriting on the wall declare they can see thereon the doom of racing, claiming it has served its purpose and the manufacturer no longer needs such competition to show him the faults in his car. He has passed the rudimentary stages of such education and looks to the higher grades for information on the public's need. He gets this from the big tours and so far they have proved of great value. It took little to kill track racing, for it was a hybrid anyway, catering more to the pockets of the promoters than to the education of the maker. Beach racing still exists, as it undoubtedly has a right to, being practically harmless from the danger point of view, furnishing some ideas of value to designers working with a view to developing speed, and furnishing harmless excitement to the great American public, which craves things whose very fabric is sensationalism.

It cannot be said road racing has not had a fair trial, for witness the big events of the past season—the Bennett, the Ardennes, the Florio and, lastly, the Vanderbilt. There is a certain satisfaction in being able to record that these great contests have been successfully run without accidents to competitors or spectators such as would furnish food for the motorphobia press, which would relish such a morsel.

These races have demonstrated nothing except that it is possible to build cars that can maintain unlimited speed—speed such as no law-abiding citizen would wish to use. In this respect the car has outstripped the tire, for it is here the weak spot exists. Now that this has been demonstrated, is it not time that the car be left alone and that future experiments along the racing lines be conducted for the main purpose of improving tire endurance and reliability?

Summing it all up, one cannot help but believe that there must be some fire behind the smoke that arises with the rumors re-

garding the future disposition of the Bennett and Vanderbilt cups. That the maker would be better served if James Gordon Bennett turns his international trophy over to the Automobile Club of Milan for a touring contest instead of a race and that more good could be derived from the trophy of William K. Vanderbilt, Jr., if he changed the deed of gift so that his cup could be used for a similar purpose, is certain.

Let any sane motorist weigh the evidence at hand and decide for himself if he would not be better served with each of the great nations promoting tours instead of races—tours in which everyone has a chance, the man who motors for pleasure and the one who does it for hire.

FRANCE IS WORRIED

BOTH England and the continent of Europe are at present stirred up over the facts and figures of a French writer, who shows that beyond doubt England is the market par excellence for the French makers if they will but cater to English needs, conditions and demands.

Mr. Prade, the writer, figures that Great Britain has not to exceed 32,000 automobiles in use and that France is somewhat behind this, with but 17,000. What Mr. Prade says will interest the makers of his own country, who are doubtless seeking some outlet for their products. They have had a small amount of trade with the United States, but it is an insignificant one, inasmuch as the prices which are asked for imported machines do not appeal to the average American when he knows how much more he can purchase at home with the amount of money that would be required for the purchase of a French or German automobile of any size or make.

The figures given to show the number of machines in use in Great Britain and France together fall short of those which represent the number of American machines on the roads. Only ten eastern states, including New York, have a representation of over 10,000 for licenses granted to operate

automobiles during the first half of the present year. Chicago alone is represented by over 3,000, and such cities as Cleveland, Pittsburg, Philadelphia, Detroit, St. Louis, Minneapolis, St. Paul and the Pacific coast cities are veritable hotbeds of automobiles and automobilists. The people of the country have, in short, entered and possessed the land of motordom.

Last year alone it was conservatively estimated that American makers produced something like 35,000 automobiles, and it is safe to assert that very few of these were exported. The past 3 years have seen the automobile trade in America grow almost out of bounds, so that today there must be close to 100,000 machines in use in the different parts of this country.

Each year the American market is closing to the foreign maker, partially because the average American does not wish and cannot afford to pay the high prices that are demanded for the imported machine. The American would prefer to take three or four American cars, strung out over as many years, than to have one French car of a value equal to the three or four American productions.

It is pretty safe to assert that while the French maker is looking about for a market for his surplus, and is casting his eye on English soil, the American maker will keep on improving his product and at the same time will be selling machines right under the nose of the French maker. That time is not so far off, either, for already the American exports of automobiles are constantly on the increase and a week seldom passes that the American car is not heard from in Europe's automobile trade in some form or manner.

MOTOR AGE'S CHANGE

THE CHANGE in the size of MOTOR AGE, with this issue, has been made for a number of reasons, any one of which is sufficient excuse for the publisher to offer. The chief reason is that, owing to the former size, advertisers were compelled to make cuts of a special size for MOTOR AGE, not only causing expense but delay as well to both the advertiser and to MOTOR AGE. The new form will permit the use of cuts such as are made for other automobile publications and will thus prove a saving to the advertiser. The new size, being the same as other automobile publications, will also permit of MOTOR AGE being filed with greater ease.

The general style of MOTOR AGE will not be altered. That is sufficiently satisfactory to meet all present demands, both as far as the reader and the advertiser may be concerned. But this must not be taken as an indication that MOTOR AGE is to stand still. It will continue to be what it has been, the best publication of its class, giving the reader more and better reading matter from week to week, and thereby giving the advertiser more by its constantly increasing circulation, evidenced by the publication of its postoffice receipts from week to week.



Evidently Chevrolet was training to touch only the high spots in the big event.

Mr. Morrell and the baseball umpires seem to be having a hard time of it just now.

The excellent weather the country has enjoyed of late has been good for motoring and the Standard Oil Co.

One can imagine what the eliminated drivers will say if the cars which replaced their own on the American team should fall down in point of speed or construction.

Now even the best of the English people have begun to balk on paying fancy prices for cars and have even hinted that they are through with some of the French creations unless prices drop a few shillings.

Motor car accidents are numerous, it is true; but they are quite as freakish as numerous. M. Rol, the MOTOR AGE photographer in Paris, was killed a short time since, and the peculiar part of it is that, being thrown from a car, he was thrust against the only post within 150 meters of the spot where the machine came to grief. If this isn't a case of ill luck then no matter.

The farmer is not an advocate of good roads. Not that he doesn't want them, but because heretofore he has had to bear pretty much all the burden himself for the use of others, as he at least thinks. When the farmer has become an automobilist himself he will warm up to the necessity of decent highways and will be an advocate of state aid. The motoring organizations and the makers could accomplish more for good roads by interesting farmers in the purchase of automobiles than in any other manner.

An old Illinois residenter saw a farmer twist his starting crank once, hop in his car and hike off for the farm at 15-mile speed. Naturally it set him thinking. He remembered how he used to ride on hay racks and had to drive 50 or 60 miles with an ox team to procure provisions. He was, after all, far seeing, for he remarked: "Twenty years hence the farmers all over the country will spin into town in their own automobiles. The oxen and the horses will be in the pasture, the hayrack will be in the barnyard, and the family to and from church will go thundering over the macadam roads in an automobile." Wise man! Good prophet!

Jump Sparks

Last Sunday in Chicago a woman was knocked down by an automobile. She was not killed but was reported as severely injured. To this the Chicago Tribune devoted a full column of space with display head on its first page. The same day a trolley car ran down and killed an 8-year-old child and the motorman was nearly mobbed. To this the Tribune devoted sixteen lines of reading matter and a five-line heading and tucked the story away on an inside page. What would this mean to a man up the tree?

he eek

Official drawings for precedence in Vanderbilt race gives Germany right of way, Jenatzy being selected to start first; Chevrolet's big Fiat smashed on turn on course and Major Miller's car substituted; Campbell takes Baron de Cater's place.

Analysis of foreign trade by Frenchman shows Englishmen balk at buying second-hand French cars and that prices asked for big cars abroad are thought to be too high.

Cagno proves to be star of Mount Ventoux hill-climb, Italy scoring over her French rivals. Meet marks end of French season.

Percy Megargel has exciting times crossing Bitter creek and Red desert country on his way to coast.

Pittsburg dealers report business for year of almost \$1,300,000; demand is for heavy cars.

James Gordon Bennett denies story he has given his cup to Italy for touring competition.

Braun scores his third consecutive victory in Semmering hill climb in Austria.

Cissac smashes motor cycle records in Paris, doing 90 kilometers in hour.

Manager Miles issues official diagrams and rules for Chicago automobile show.

A story from Oelwein, Ia., aptly tells the usual case of fright. The story is from G. H. Phillips and is as follows: "E. H. Burlingham, a prominent and enthusiastic motorist of this city, had a novel experience on the highway north of here during the latter part of this week. While driving his touring car to Decorah he met a horse and buggy containing an elderly lady and gentleman, who subsequently proved to be Mr. and Mrs. Philip Dowse. As Mr. Burlingham approached the rig he stopped and kindly offered to assist the old gentleman in his effort to pass the automobile, to which Mr. Dowse replied: 'If you will please lead my wife by, I think the old mare and I can make it all right.'"

Jenatzy starting first in the Vanderbilt alters the dope some.

When an agent shifts his account, does he have a patent conscience-shifting apparatus also?

Somehow or other Megargel has not come to the front with any hair-raising Injun stories on his transcontinental trip.

It is no wonder that James Gordon Bennett thinks it about time some organization that will guarantee to take care of it and defend it after winning the trophy should have his cup.

Some of the makers and drivers who competed in the American eliminating trial for the Vanderbilt cup race probably feel that they were handed a gold brick when they reached New York. But this is nothing; many a good man has picked up a gold brick in New York.

The decision of the Vanderbilt cup commission to throw out three of the qualifying cars stirred up a hornets' nest for a time, but it is a noticeable fact that the public and the contestants took their medicine gamely. But it must be remembered that silence is sometimes the forerunner of something doing.

Either the Pope people have not withdrawn their racing men or Johnny Fisher has been piping, for his thrilling tales of race car adventure told to the Capital, of Topeka, Kan., are numerous. So far as known his "driving down stretches at the terrific speed of 90 miles an hour," his "climbing outer fences," his making "junk out of more than \$10,000 worth of automobiles," and his "turning over 90-horse-power cars" are creations either of his own or some reporter's smoke dreams.

Indications are that the speed fiend is being tamed or that his senses are being restored. The constable and the policeman seem to be resting on their oars, the bumps have been shaved, the snares are forgotten, the farmer is being reconciled and is buying automobiles, the legislative bodies have calmed down a little and the motorist—the sane motorist—is having peace. As MOTOR AGE said some time ago, all that was needed was for the public and the motorist to be reasonable and sane and the motor car would not prove the terrible thing it had been imagined. There is, however, a chance to improve things even now on the part of the enthusiast.

IN BATTLE WITH SAND

Megargel Fights Way Through Frightful Wastes of Western Deserts on Coast Trip

Rock Springs, Wyo., Oct. 4—The Reo Mountaineer still carries on its dash the motto Westward Ho. The mud of the center and the sands of the western deserts will soon be matters of history, in the first half of the double transcontinental tour, and the Pacific will be welcomed.

In the old days of transcontinental wagoning a man who successfully navigated the Bitter creek and Red desert sections of the Wyoming trail was considered tough enough for anything. Judging from our own experiences during the past week, the same may readily be applied to the man who operates an automobile over the same tracks. The country is sandy in the extreme and there are no towns from Rawlins to Rock Springs. The only places where a traveler can stop and get water or eatables are the little red section houses of the Union Pacific Railroad company, scattered about 10 miles apart over this entire stretch of waste lands—for the lands are certainly wasted in this section, being too poor for either cattle or sheep.

Tourists must carry what gasoline they deem necessary to cover this stretch of desert and should also provide their machines with sand tires, if they hope to negotiate successfully the many miles of deep white and red sand. Bitter creek receives its name from the fact that the water in this green and white becrusted stream is bitter—so bitter that men and cattle would rather die than attempt to drink it. Judging from the numerous bones, whitening in the sun's fierce rays, both man and beast have perished along this stretch in almost countless numbers.

We carried on the Reo Mountaineer, in addition to well-filled tanks of water and gasoline, 10 gallons of gasoline and 5 of water, strapped on the running boards for use in case of emergency. It was lucky we did, for the emergency came when we struck the sand. After putting on our

sand tires, the Mountaineer ran on low speed with throttle wide open. I was told by fully a dozen well-pleased owners of automobiles that the Reo would take any sand it came to without sand tires, but I claim the machine is not made which will run over the white, shifting sands of the Wyoming desert without sand tires or some similar help. This sand is so light and shifting that 2 minutes after running over it the tracks are entirely lost.

Several parties who have followed my articles in *MOTOR AGE* have asked me: "What are sand tires?" Replying to this question I would say that the sand tires used by me on this trip are made from plans drawn by R. E. Olds and given by him to the foreman of the Reo upholstery department, who worked out the plans and shipped the tires on to me at Cheyenne. They are made of several layers of a very heavy canvas, leather bound on the surface, and they strap around the rims of the wheels, with a strap for every spoke. The ends are drawn up tight and laced together with rawhide. The tread of the tire itself presents a flat-leathered surface in the center, surrounded on either side by a circular piece of canvas stuffed with wool. The flat center is about 3 inches wide and the sides of wool stuffed canvas are each about 2 inches in width, giving a total width of 7 inches. Seven inches of treading surface is found quite different from the ordinary width of the Diamond tire, 3½ inches, and prevents the heavy wheels from sinking to any considerable depth, no matter how soft and drifting the sand may be.

Bitter creek must be crossed at least a half dozen times in following the trail from the station of that name to Rock Springs. The bitter, greenish water in the bottom of the creek, so thick with alkali that it is actually encrusted in white in some places all the way across the stream, presents the most treacherous kind of fording. Sometimes the bottom is fairly hard, but oftentimes the entire bottom of the creek seems to drop out from underneath the car and the wheels sink into that sticky alkali mud until just the tops are visible.—PERCY F. MEGARGEL.

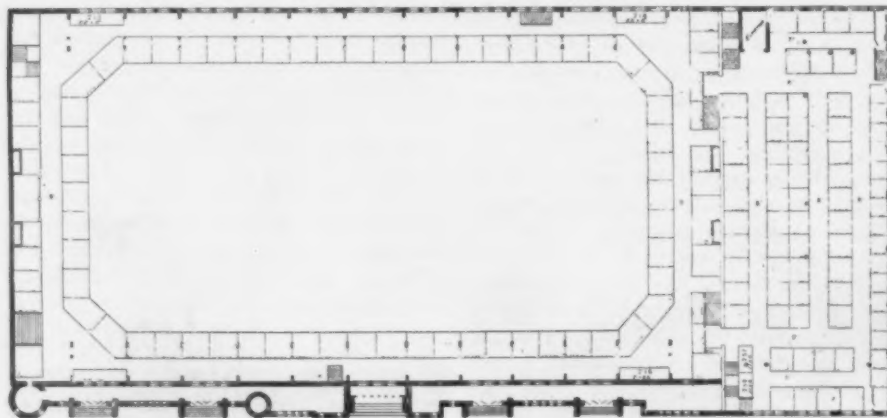
YEAR IN SMOKY CITY

Pittsburg Dealers Report Sales of Nearly \$1,300,000 Worth of Cars This Season

Pittsburg, Pa., Oct. 2—The business of selling automobiles is practically at an end in Pittsburg for this season. It has been a record-breaker. Over 600 first class cars have been sold, besides an extensive trade in second-hand machines being done. The total amount of this business was nearly \$1,300,000, according to the best estimates obtainable from the dealers. Even for Pittsburg, the city with more multi-millionaires than any other municipality of its size in the world, this is a wonderful record, the more so when it is remembered that the automobile is decidedly out of its natural element in this city, where steep hills, narrow, crooked streets and poor roads make the task of running a car one fraught with much labor and danger. But the Iron city has got the fever and next year the automobile dealers confidently expect to see a total of more than \$2,000,000 in automobile sales.

In general the season has been extremely satisfactory. The demand for automobiles was foreshadowed to such an extent early in the year that two new automobile companies were organized—the Hiland Automobile Co. and the Liberty Automobile Co. Two more companies have recently entered the field—the Pittsburg Motor Vehicle Co. and the American Automobile Co. The two concerns first named are both preparing to greatly enlarge their facilities and the last two will erect plants at once. The expansion in the trade of the older firms has been no less noticeable than the starting of new ones and the success they have attained. The Banker Bros. Co. has nearly completed an addition to its garage, which will give it the largest space in the city, and the Keystone Automobile Co. and the Standard Automobile Co. are both considering extensions which are badly needed to take care of their rapidly growing business. The most sanguine dealer 1 year ago would have hardly dared to predict such heavy sales this year, especially as the weather during 5 months of the season proper was so bad as to make automobiling off the paved streets next to impossible. But the business has come and with it an increase in the automobile spirit that bids fair to sweep aside all previous records next season.

Two points stand out clearly in the season's business. One is the rapid and steady growth in touring. Two years ago a man who took his vacation in a car was regarded as a daring person. During the last 3 months hundreds of Pittsburgers, with their wives and families, have gone east and west, north and south—hundreds of miles, over mountains and far away from modern repair shops—and have returned, invigorated and elated with the wonderful exuberance and independence that attend the vaca-



ARRANGEMENT OF SPACES IN GALLERY FOR THE 1906 CHICAGO AUTOMOBILE SHOW

tion trip in an automobile. Not to hazard a trip of a few hundred miles now is almost to court being called cowardly. Touring is quite the thing among the Smoky city motorists and they will bend their energies this winter to getting better roads, more charming routes mapped out and a closer connection with automobile associations in other cities and states that these summer trips may become still more popular and satisfactory. The other pertinent point in the season's trade is the increasing demand for heavy cars. This follows naturally as a result of so much touring. Then, too, automobilists have found that it needs a heavy and powerful machine to carry a party of six or eight persons up a steep grade on an unpaved street or even up some of the boulevard hills.

The year has been conspicuous for the few events in comparison with the long list pulled off the preceding year. The Automobile Club of Pittsburg has turned its efforts to better roads and fairer legislation. Working along these lines, it has not only gained a firmer foothold with automobilists themselves than by fast racing, but it has won a place in the public confidence, particularly in the country districts, that it never had before. Its efforts to get good roads are not overlooked by farmers and they are letting up on their hysterical shrieks against automobiling. City authorities, although they still fight the automobilists, are beginning to see the necessity for enactments that will give the motorists at least a fair show. Hence the craze for racing is slowly dying out. "One mile of good roads for every meet we don't have" is the motto of a big proportion of Pittsburg club men who are beginning to feel keenly the benefits of the sport as enjoyed in a rational and healthful manner. Racing will have a more or less precarious existence in Pittsburg. Automobiling, on the contrary, has come to stay and its devotees are increasing in numbers and loyalty at a rate that gives every dealer in the city good reason to feel happy and hopeful.

PANHARD'S NEW FEATURES

New York, Oct. 2—William Du Cros, of the family which handles the Panhard in England, is here on a business trip in the interests of the French car. There will be five models of the Panhard marketed in America this coming year—an 8-11-horsepower, a 15-20, a 24, a 35 and a 50. In the 1906 models the axle will be placed further back than usual, which enables the French concern to fit a side entrance without unnecessarily lengthening the wheel base. The 15-horsepower model has a hydraulic governor and a gear-driven pump, as well as a new system of suspension back springs. The 24-horsepower is an entirely new model built exactly like the Panhard 50-horsepower. The magneto is gear-driven, as is the pump. There is a hydraulic governor, push pedals and the steering column passes through the dash.

CHICAGO SHOW FACTS

Manager Miles Issues Diagrams and Application Blanks for Exhibition in Windy City

New York, Oct. 3—Manager Miles has issued to the trade diagrams and application blanks for the 1906 show at Chicago. He announces that all equipment will be provided by the management, the cost being included in the rental. There will be no other charge. No equipment or decorations other than that so provided will be permitted. The right is reserved to decline to allot space facing on two aisles and to allot consecutive numbers only if that plan should appear fairer to a greater number of exhibitors than the old system.

The allotment will be made on Wednesday, November 1. All applications received up to noon of Saturday, October 28, 1905, will have equal consideration, subject to the conditions named. Later applications will be given consideration after the first allotment has taken place. The price of space, per square foot, is as follows: All corner spaces, from 1 to 82 inclusive, including spaces 6 and 7, \$1.15; all other space in all parts of the building, \$1. These prices include suitable floor covering, dividing rails, signs, hanging, wiring and current, if electric signs are decided upon, furniture and all necessary decoration and preparation. The management will so prepare spaces that no attention on the part of the exhibitor to any of the usual details will be necessary. There will be nothing for the exhibitor to do except place his cars or other goods in position. No other decoration, electric lighting, furniture or other material likely to destroy the uniformity of the exhibition will be permitted to be used.

The gallery will be devoted to the exhibits of members of the Motor & Accessories Manufacturers and manufacturing members of the National Association of Automobile Manufacturers, and will be allotted by a committee of the former, members of each organization receiving equal consideration. The space on the second floor of the annex will be devoted to exhibits of other makers

of and dealers in parts and accessories.

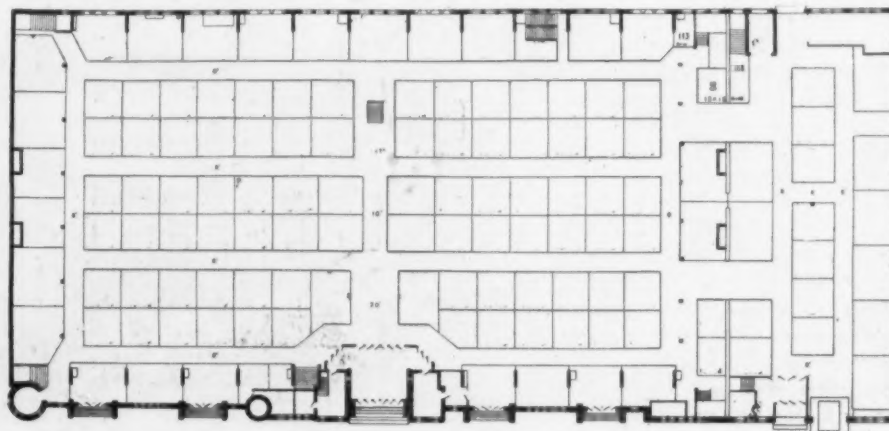
The show will be opened to the public Saturday, February 3, at 1 p. m. and each and every day thereafter, Sunday excepted, at 10 a. m., and will close each evening at 10:30 p. m. To the morning sessions, from 10 to 12, any automobile dealer or manufacturer will be admitted without charge by furnishing proof of his connection with the trade to the clerk of the bureau of information.

All of the spaces on the ground floor, in the restaurant and basement of Madison Square garden, have been allotted for the show of 1906. The spaces on the elevated platforms belongs to the parts and accessory makers and they with the importers will make their own allotment.

By a judicious selection of exhibits extreme congestion will be avoided. There will be not only room enough in the aisles for the comfort of the visitors, but room enough in the spaces, also, for their entertainment in a manner creditable to the industry. The decorative work will be on a scale of magnificence hitherto unknown in this country. Decorations for all the exhibitors will be in charge of the show committee and will be done by one decorator in one scheme. The color, lighting, sign and decorative scheme will extend throughout the building. Exhibitors in the gallery and on the main floor will be treated alike with respect to decorations and electric signs. There will be no individual plans allowed to mar the beauty of the general decorating scheme.

For the first time the show will be divided into departments. On the main floor will be pleasure vehicles, of gasoline and steam motive power. Electric vehicles will be in the Exhibition hall, otherwise used as a cafe. Commercial vehicles will be in the basement. For tires, parts and accessories the concert hall and platforms above the main floor will be used.

Motor car builders in the west as well as in the east are already talking the Chicago show proposition. The Windy City stands pre-eminent as a sale producing show. The individual manufacturers at the last show recorded unprecedented sales, and the 1906 show promises to be a leader.



GROUND PLAN FOR THE 1906 CHICAGO SHOW AT THE COLISEUM BUILDING



The Realm of the Commercial Car



An Ohio Inter-City Motor Bus Line

SPRINGFIELD, O., and three of its nearby towns are the scene of an inter-city motor bus line, the operation of which was started some 8 weeks ago and which is proving a good venture, as well as providing an excellent field for experimenting with the possibilities of the gasoline motor bus as a substitute for rural trolley lines, narrow gauge steam lines, or bus or stage coach routes. The scene of the experiment is to the south of Springfield, a city of 38,000 population, located in the center of Clark county, in the lower part of the state. South of the city, 8 miles, is Clifton, a typical 500-population town; 8 miles southeast of Clifton is Cedarville, with its 1,500 people, and 6 miles to the southeast of Cedarville is Jamestown, boasting its 2,500 residents. The three burghs lie south of Springfield as three lengths of a snake fence, the total distance between the termini being 22 miles.

The Commercial Transit Co. boasts a modest incorporation of \$50,000, of which \$20,000 has been paid in for preferred stock. John S. Harshman, of Springfield, the president, who for a long time has been closely identified with the leading traction line schemes in Springfield, is the promoter of the experiment and the turning of his attention from electric transportation to gasoline is not one of the smallest features of the enterprise. The circumstances, relative to the starting of this motor bus line, are interesting in that the line follows in the wake of numerous efforts to trolleyize the country roads joining these places, all of which exploded in mid-air owing to the sparsity of the rural population and the small population, as well, of the three places linked together by the system. The promoters of trolley lines figured that the number of people that could be looked upon as possible patrons of an electric line would not hand over to the company in fares enough to lay the rails, construct the roadway and operate a single car system over the line. This scheme would at best give poor service between the places—a service, in fact, not conducive either to inducing travel either among the ruralites along the line or with the burghers in the towns

and villages passed through along the route.

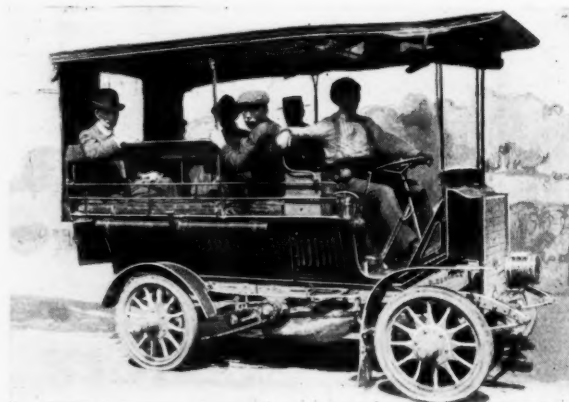
Not one of the least important arguments in favor of the establishment of a motor bus line was the excellent condition of the roads. Few hills are encountered on the route. Along the road are many farmers, most of whom will not be slow to grasp the advantages of the motor bus. Bad country roads are the bugbear of the motor bus, as well as the passenger automobile, and Mr. Harshman, in deciding to take the bull by the horns, made a novel proposition with the commissioners of the counties of Clark and Greene, through which the route passes. He offered to aid in keeping the roads over the route in repair by spending at once \$1,000 in improving the roadway, by filling in all holes along the route with stone, leveling all parts and putting the service in excellent shape by rolling. This offer was voluntary on the part of the president of the company and showed the determination to succeed which marked the initial efforts of the company. The president went further and arranged with the commissioners to share part of the repair bill for future years by agreeing to spend \$100 a year in repair work on every mile of the road, the commissioners to spend a like sum.

The company began operations by purchasing from the Olds Motor Works three buses, with a carrying capacity of fourteen passengers each. The machines are

of typical Olds construction, with 18-horse-power motors placed vertically in front. Passengers sit on two side seats for six passengers each and the cross seat for the driver accommodates two more passengers. The body is bus shaped, with canopy top projecting over the driver, and drop side curtains so that in stormy weather the passengers can be protected from the weather. The company has added a few luxuries of its own in the way of an Apple dynamo for furnishing current for small electric lights and for a headlight. The exhaust pipes are arranged to pass beneath the side seats, where heating spaces will be furnished, and the interior of the buses will maintain an even temperature.

Two cars are now running daily, the third being retained for emergencies. The schedule between Springfield and Jamestown, 22 miles, calls for two round trips every other day from each machine and two and a half round trips from each on the intervening days. The cars leave the termini daily at 6 a. m., 9 a. m., 12 m. and 2, 4 and 7 p. m., one car making two round trips or 88 miles every other day, the other making 110 miles or two and a half round trips, or the machines totaling 220 miles every day. The single trip is made at a speed of 13 miles per hour, 1 hour 45 minutes being needed for the 22 miles. At each end of the route a 15-minute rest is given each machine. So far the schedule has been strictly adhered to, but it is uncertain to predict what the bad winter months may do with the service.

The fares charged are based on a 2½-cent per mile rating, with a fare of 50 cents between Springfield and Jamestown, 22 miles. From present running the cost of operation can be fairly well calculated. In a round trip of 44 miles 4½ to 5 gallons of gasoline are consumed and 2½ pints of lubricating oil. The former costs 10½ cents per gallon and the latter 50 cents per gallon, making the expense for each round trip 57 cents. The operator is paid 25 cents an hour and as 2 hours are required for the round trip an extra \$1 must be added, making the actual operating expenses for



COMMERCIAL TRANSIT CO.'S MOTOR BUS

a round trip for each machine, \$1.67. Four and a half such trips are made each day, so that the daily expense is \$7.51 and the yearly cost amounts to \$2,253.00. The company is allowing 2 cents per car mile for repair and depreciation. The two machines make together 220 miles each day or 66,000 miles per year, 300 days, so that the yearly repair allowance amounts to \$1,320, which, taken with the annual fuel bill, gives a grand total of \$3,573.

The three machines cost \$6,600, an extra sum of \$1,000 was spent in fixing up a garage and repair shop, and \$1,000 was spent on highway repair. On this investment 5 per cent interest must be placed, which adds \$430 to the total of \$3,573 already reached, making in all \$4,003 expenses for the first year.

Where are the receipts to cover this expenditure to come from and what will the company have as a revenue at the end of the year? Supposing that only one passenger was carried throughout the entire year, the receipts therefrom, at 2½ cents per mile, would be 2½ cents taken 66,000 times gives \$1,650. Two passengers carried all of the time would give an annual revenue of \$3,300 and four passengers would yield yearly receipts of \$6,600. Take from this sum the operating expenses, \$4,003 and there remains \$1,597 as a dividend on the \$20,000 paid up stock. A 5 per cent dividend on the \$20,000 stock would only amount to \$1,000, so there remains a margin of \$597 for some things that are sure to lighten the coffers of the concern.

The company is anticipating running a similar line north of Springfield through Catawba, Mechanicsburg and Marysville, a total distance of 35 miles. A railroad links these points at present, but the service is so poor it offers slight advantage to the people in the towns passed and none to the farmers along the line. The company fur-



STOP NEAR CEDARVILLE, O.

ther shows its faith in the gasoline motor bus by ordering two 18-horsepower machines for use in and around Springfield. In the immediate vicinity of the city are such attractions as the Odd Fellows' home, Masonic home and Pythias home, all of which will lend aid to such transportation. It is the intention also of the company to rent the machines to picnicking parties at \$5 per hour.

A glance at the map, next page, shows the wisdom of running the line through Clifton, Cedarville and Jamestown. The places are not linked together by a railroad and the trip to Springfield from any of the places means a roundabout run. The motor bus places the Jamestown people within 1 hour 45 minutes of the place. To the farmers the road is a boon. The buses stop at their gates and after taking them to market return them to their gates again.

A MOTOR AMBULANCE

John McCarthy & Sons, of Syracuse, N. Y., have put into commission one of the first automobile ambulances in that section. The White Angel, as it is called, attracts much attention. There are many new features in this ambulance. Mr. McCarthy introduced the first horse ambulance in Syra-

cuse 16 years ago and has given free ambulance service ever since. He still keeps the horse ambulance for emergency. The new venture of Undertaker McCarthy was manufactured by the Brennan Motor Co. The body was made by Lonsdale & Enright, carriage builders, who followed the plans laid out by Mr. McCarthy. The Brennan company made the chassis and engine, which is 16 horsepower. The car weighs 2,750 pounds.

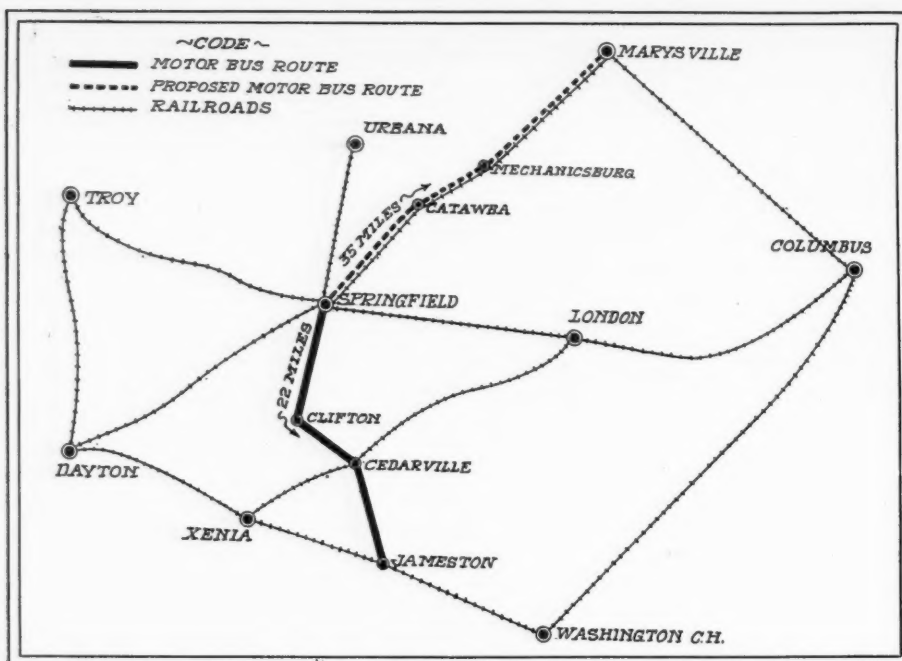
The car has a sprag which can be dropped by the operator in case the machinery should fail to work on a hill. An immense gong is operated by the driver. A mica wind and rain shield is fitted into canvas, which when not in use is buttoned to the top. The car is equipped with 30 by 3½ inch Diamond pneumatic tires and anti-skids on the rear tires, and has a three-speed sliding gear with chain drive. The car is finished in pure white and lined throughout, including the ceiling, with red leather. On the right is a leather couch, upon which a patient reclines, and at its head is a leather seat for the doctor. Over the coach are brackets, similar to those seen in railway cars, upon which hats, coats and other articles may be placed. A lamp is placed between the two brackets and under the doctor's seat is a locker. There is a 14-inch walk between the couch and the left wall of the body, covered with matting.

The vibration is reduced to practically nothing by the fact that there are two floors, the upper floor, upon which rests the couch, being so arranged that it can easily be pulled out. The lower floor has doors, so that the machinery can be easily reached. Between the two floors a folding casket is placed. Should the patient die the casket is drawn out and the corpse placed therein. Between the floors there is also a canvas stretcher, which can be taken out quickly.

The speed of the ambulance is 25 miles



FRIENDLY TANK WAGON STOPS TO GIVE MOTOR CAR A SUPPLY OF FUEL



ROUTE OF THE OHIO INTER-CITY MOTOR BUS LINE

an hour. One night during the state fair the ambulance went from Mr. McCarthy's house to the fair grounds, a distance of 5 miles, in 15 minutes and in 20 minutes the injured man was in the hospital. The ambulance was put in service at the New York state fair grounds for 6 days, having been engaged by the fair commission. It responded to telephone calls all over the grounds, taking the sick and injured to the emergency hospital. The Monday following it was engaged to be on hand at the automobile races at the state fair track. The first call of the ambulance was to take an officer of the national guard to the railway station. The ambulance transported the treasurer of the fair and about \$15,000 nightly from the fair grounds to the city. In the daytime the car is kept in Mr. McCarthy's barn. At night it is kept in front of the store ready for emergency calls.

EUROPEAN AMBULANCE FIELD

Europe, as with all other phases of the commercial use of automobiles, leads America in the ambulance field. Switzerland, with more than usual aggression, has a complete motor ambulance service in two or three cities, and on one or two of the popular mountain roads, small ambulances, driven by gasoline motors, are used. In Germany, it is all the army, and here we find motor ambulance corps a standard part of the brigade organization. The German types are propelled by the gasoline motor and also by the electric battery. The former is in the ascendancy. All of the machines have a running speed of 25 to 30 miles per hour and are fitted with large size pneumatic tires, but solid tires are suggested for active service. The chassis construction is similar to that in standard touring cars.

In France progress is slower; the army has been attending more to motor transport of ammunition and supplies rather than to

such method of carrying the wounded. In Paris, however, over a dozen ambulances are in service, most of them being owned by the large hospitals and placed gratis for the use of patients. England, especially in old London, uses them in considerable numbers and in her African, Australian and American possessions the pneumatic tired gasoline machine is doing good missionary work.

MOTOR BUS ON DEFENSE

The development of the motor bus in England has led to a controversy between its advocates and those of the electric tramway as to comparative cheapness of operation, maintenance, and utility of the two systems. The cost of propulsion for each ton weight of electric car was recently placed by a dealer at 24 cents; that of the gasoline motor bus at 80 cents. This is claimed to be an unfair comparison, be

cause the motor bus weighs only about one-third per seat of the tramcar weight. The motor buses so far in use in England carry from twelve to thirty-six passengers, though forty-two-seated ones are now being built. It is claimed that the operating cost per mile is but little more for the larger than for the smaller sizes. The double-decked tramcar seats from fifty to seventy passengers. It does not seem to be disputed that the cost of rubber tires for motor buses averages more than the cost of maintenance of car tracks, allowing for original capital expenditure. It is contended, however, that improvements, organization, and increased knowledge are reducing the operating expenses of the motor bus. These, according to the latest official statement made for the motor bus, are 16.10 cents per mile, including maintenance and all working costs; similar expenses of municipal tramways, according to such statistics as are available, range from 14 cents to 14.56 cents per car-mile on an average.

The special claim made for the motor bus is its availability in certain localities and conditions where the tramway would be impossible or unprofitable. Therefore in urging its merits, it is presented less as a direct competitor of the tramway than as an adjunct to or a substitute for it. One particular field for the motor bus lies in towns or on routes where a sufficient number of electric cars could not be run to make a return on the capital outlay for tracks and equipments. In congested city districts like London about the Bank of England, where cars and car tracks would presumably be a serious obstruction, the motor bus expects a clear field. For limited rural service the motor bus is claimed to be particularly serviceable and economical and this is especially applied to instances where railways are now using motors to link their systems with attractive country and seaside places which have hitherto been practically inaccessible owing to cost of steam service.



A SYRACUSE UNDERTAKER'S MOTOR AMBULANCE

COMMERCIAL STEPPING STONES

Spain Wakes Up—Word comes from Spain that the municipality of Madrid contemplates the purchase of a number of automobile sprinkling carts for street use. American manufacturers have been invited to submit propositions.

Lansing in Line—Up-to-the-minute accommodations are being afforded travelers upon their arrival at Lansing, Mich. Plying between the depot and the hotels are two automobile buses. One is operated by J. A. Carr & Co. This machine is of the Olds manufacture and has a seating capacity of twelve persons. W. H. Porter is also operating an automobile bus in connection with a transfer line. His car is a Reo and also has a seating capacity of twelve persons. The cost to the patrons of the bus line will not be increased.

Russians Using Cars—Recent advices from Odessa, Russia, set forth the information that motor cars are coming largely into use for communication between country houses and the nearest town or railway, and also for inspection of estates. At present motor cars are supplied to Odessa by France, the United States and Germany. For touring purposes 12-horsepower cars are in demand, while for estate inspection, etc., cars of 8 horsepower have the call. Anyone who wishes to try his luck in south Russia should remember that the roads are bad and repair shops may be far away, so that strength and simplicity are more than ever desirable. Water is often difficult to obtain, so that steam cars should have water space sufficient for long runs without need of replenishment.

Oldsmobile in R. F. D.—A. H. Helgesen, R. F. D. carrier No. 5, out of Montevideo, Minn., in a recent conversation with a MOTOR AGE representative, spoke in the following terms on the work he is doing with an Oldsmobile runabout in covering his route: "My route is 24 miles. In making the trip I require 2 to 2½ hours and never over 1 gallon of gasoline on good roads. Then the machine does the work of a team of horses, but in very bad weather and on poor roads I do not use it at all. The expense is greater than a team when I run it all the time. Here are a few of the expense items I have had to face: General repairs, \$30; new carburetor, \$12; new chain, \$8.40; special improvements of my own, \$10; new tires, \$62. The advantage in using the automobile is in the time saved and in drawing trade in other lines that could not otherwise be secured. All through I am pleased with the machine, but would think it an advantage in having a 12 or 16-horsepower machine so it would plow through sand, mud, snow and all." This machine

has been in use for 16 months. The daily start on the delivery trip is at 2 in the afternoon with sixty-four mail boxes to be visited. The trip is finished in 2 hours, but when horses are used the start is made at 1 o'clock and the finish made after 5. The car often covers 120 miles a day, in addition to the regular mail route, when other work is being done.

New Quaker Line—Philadelphia is reviving in automobile bus lines these days. Besides the numerous rubber-neck wagons, to which the many conventions held in the Quaker City recently have brought a land office business, the Atlantic City line, which runs tri-weekly, is becoming a fad. While a line which does Fairmount park four times a day has more patrons than it can attend to. Last week another daily line was inaugurated, the objective point being Valley Forge, the start being made at 1:30 o'clock in the afternoon and the return trip being completed about nightfall. It is rumored that by next spring a line of fifty electric buses will be in operation on Broad and Diamond streets, at regular street car fares.

Clevelanders Fight Over Car—The municipal automobile which was purchased a few weeks ago for the benefit of the city fathers of Cleveland, Ohio, is causing a lot of trouble. The city council authorized the purchase of the machine, a 40-horsepower Stearns and the hiring of a chauffeur, without any very clear restrictions as to who should use it. The result is that about every one of prominence in the city hall has had a ride and since then they have all wanted more rides. The poor machine has had no rest and the operator has threatened to quit his job unless some sort of a plan is worked out for regulating the matter. The prospects are that the council will be asked to authorize the purchase of several machines in the very near future, as there is no other way to settle the controversy.

To Build Gyroscope Wheel—The Couple Gear Freight Wheel Co., of Grand Rapids, Mich., has let the contract for the erection of a factory. The new structure will be of brick and will cost \$10,000. The machinery, which will be installed, will cost in the neighborhood of \$70,000. The company was recently organized in Grand Rapids to manufacture the gyroscope wheel for electric trucks and is an off-spring of the Holson Motor Patents Co. The plant is expected to be in operation by January 1, 1906. The company will manufacture, besides the wheels, the complete chassis, embodying everything in the truck but the body, batteries and tires. But one size of wheel will be produced at the new plant. Other sizes will be manufactured at other plants, which will be built by the company as the demands of

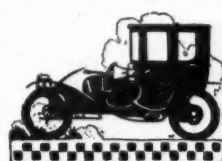
the business make them necessary. The wheels to be manufactured by the company each contain an individual motor, fed by batteries underneath the truck.

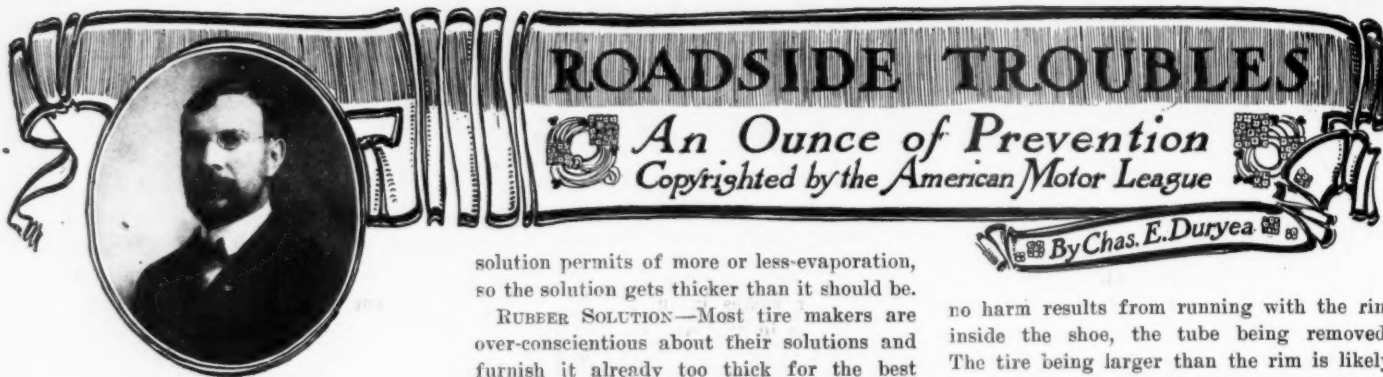
Jewelers in Line—Bailey, Banks & Biddle, the famous jewelers of Philadelphia, have just added to their delivery service two Cadillac delivery wagons. The company proposes in the near future to almost entirely supplant its present horse delivery with motor wagons.

Southerners Try It—The R. Haury Co. has put in operation the first motor delivery wagon introduced in Nashville, Tenn. It is a 12-horsepower Cadillac and now the Merchants' Delivery Co., that operates some twenty wagons, is figuring on the installation of similar vehicles. This is sure proof that the commercial cars have made a hit there.

Beats Jim Crow Line—Among the recent enterprises in Nashville is the Union Transportation Co., capitalized at \$25,000, which was granted a charter by the secretary of state to do a general transportation business. Immediately after the enforcement of the Jim Crow law colored people began to ride on the cars only when necessity demanded. Becoming tired of walking, the more wealthy colored citizens hit upon the idea of organizing the transportation company. Five big passenger automobiles have been ordered from New York and are expected in Nashville soon, when they will be put into service, one in each of the four sections of the city, north, east, west and south, while the fifth will be retained as an emergency machine. Work has begun on the erection of a new garage for the reception of the automobiles. The colored citizens of Chattanooga have started a similar movement.

Test Was Satisfactory—J. A. Cramer, of Buffalo, is showing the first of the Premier business wagons taken to Buffalo. Almost the first day the Premier was there Mr. Cramer sent it to Hamburg, 12 miles out into the country, with a load of 800 pounds of plumbers' supplies for a new building. Nine men rode in the car also. The time consumed on the trip was not recorded, but it must have been satisfactory, for next day the plumbers ordered one of the cars, specifying that the body be made extra large to accommodate even more of a load than the 1,800 pounds which the Premier people intended the car to carry. This is the first time Mr. Cramer has become much interested in a business automobile and he believes that the time is coming when Buffalo, because of its smooth asphalt paving, will be the leading city of the country for commercial motor cars.





TIRES—Good tires give little trouble, watch them constantly. It is advisable never to start, after stopping without a look at the tires, for driving on a flat tire is apt to tear off the valve tube and pinch a number of holes through the tube. In some instances it will damage the outer cover irreparably and may damage the rim. If the tire is flat and a quick inspection does not show a nail or other cause, apply the pump and note the result. If it inflates properly a slight leak is probable. In this event test the valves; for about half the tire troubles, as shown by the New York-Boston reliability run, are found in the valves. This is done by immersing the stem in a glass of water, the valve being at the top of the wheel. If no leak is found here it must be elsewhere and the tire, if single tube, must be placed in a tub of water. If double tube, the tube must be removed, when the leak ordinarily can be heard or felt, but if very minute the tube may need testing in water. Repair instructions commonly accompany tires and therefore need not be included here.

TIMELY HINTS—A few remarks, however, gained from a long experience, will not be amiss. Always take the precaution to see that your valves pump easily and hold the air with reasonable certainty after the tire is inflated, for it is a decidedly unpleasant experience to be obliged to work hard and long in a hot sun after a tire has been repaired, because either the valve is not in good condition or will not hold air long enough to permit the cap to be applied. Valves, theoretically, should open at less than 10 pounds pressure, but in practice the resistance offered frequently necessitates several times this, thus unnecessarily doubling the already hard work of inflating a large tire. Pumps, too, should be given their share of attention to see that they work properly at high pressures, for it is far more important not to lose air after the pressure gets higher than at the beginning when the work is slight. The rubber tube and the passage through the connections, from the pump to the tire, should be kept clean and free, for much resistance is often found here, materially adding to the labor. The ordinary metal tube containing rubber

solution permits of more or less evaporation, so the solution gets thicker than it should be.

RUBBER SOLUTION—Most tire makers are over-conscientious about their solutions and furnish it already too thick for the best results under the hurried conditions usually found on the road. A thick solution does not set quickly and if the patch is applied while the solution is yet soft it does not hold firmly and may give trouble immediately after inflation and use, particularly if the road surface is hot, which tends to loosen the patch. A little gasoline will thin the solution, and there is not much danger of getting it too thin. A solution tube apparently half empty may be filled with gasoline, and after a day or two will be better than ever before.

PATCHING—It is particularly important that the surfaces of the rubber be clean. Sand paper is ordinarily and quite properly used to roughen them but its beneficial effect is rather that of cleansing than roughening. A clean, smooth surface will hold better than a rough one. Hard rubbing with gasoline on a bit of rag will generally remove all dirt, powder and "bloom" and leave the surface in perfect condition to receive the solution. Above all, water must be kept away from the surfaces, for it will neither permit the solution to adhere nor will drops of water dry rapidly if they are once smeared with solution, which excludes the air. In case of a torn valve stem, the surface can be smoothed by rubbing with a hot poker, taking care not to burn through the tube. It is usually possible to secure a smooth surface for the new valve in this way much more readily than by cutting with the average knife. One caution is to take ample time in making a repair, particularly allowing the rubber solution to get thoroughly set before applying the patch, and if time can be given it before using, all the better. Heat tends to soften fresh solution and loosen it, so avoid the hot sunlight or hot roads with a fresh patch as much as possible. If the tube cannot be repaired, wrapping the rim with rope will permit the vehicle to be driven, at a slow speed, of course. With rims having no sharp edges like the Dunlop and a little care in driving



EDITOR'S NOTE—This is the eleventh of a series of articles by Charles E. Duryea. These articles will be prepared for publication in book form and will be distributed by the American Motor League to its members during the coming year.

no harm results from running with the rim inside the shoe, the tube being removed. The tire being larger than the rim is likely to jump off, but several miles can sometimes be covered in this manner slowly but successfully and without apparent damage to either the rim or the tire. If the shoe is left in place in the rim, the edges tend to bind on the rim while the outer portion is crowded forward, thus wrinkling the shoe at several places and breaking both rubber and fabric. A shoe can be destroyed in this way in a very few rods.

OIL ON RUBBER—Rims should be kept painted on the inside, for rust not only has a damaging effect, but, being rough, it tends to chafe the rubber in contact with it and prevents a water-tight bearing of the tire against the rim, thus further aggravating the rust by admitting water, which also wets the tire fabric and soon rots it. Light oils are absorbed by rubber which causes it to swell and lose its strength as if rotten. Gasoline, on the other hand, although quickly absorbed, quickly evaporates, leaving the rubber uninjured, while heavy cylinder oils are usually so thick and heavy as to be absorbed but slowly and on this account are not likely to do much damage. It is not advisable, however, to leave oil on the tires.

JACKS—In removing a tire or a wheel, if the vehicle is heavy, a jack is necessary. If light, the tire may be applied at the top and then the wheel rolled so as to bring the portion of the tire that is on the rim underneath, after which the remainder of the tire can be applied. Some people carry a jack with them but if not at hand one can commonly be made by using a box or a stick of wood of proper length, or a stick of wood rather too long and a rail. Put the rail under the axle, the stick of wood under the rail with its top leaning toward the vehicle, then push the vehicle on the rail which tends to straighten the stick, thus lifting the rail and the wheel clear from the ground. Usually something available to hold up the wheel will be found in the immediate neighborhood when needed. Some vehicles are constructed with their wheels readily removable, which is a decided convenience in cold or stormy weather, as it permits the repair to be made under shelter instead of at the vehicle. In this event care must be exercised to see that the jack holding the axle is secure, for dropping one end of the axle will not only twist the vehicle badly but may damage some of the parts.

CLEANING THE HANDS—In repairing tires the patching solution frequently gets all

over one's fingers. This, if combined with soap, becomes insoluble in water and is a very nasty grease to remove. It is best to not use soap but either wash the hands free from dust in clean water and then rub the solution off or rub it off before using water at all. When the solution is dry it rolls up easily, so that the hands are readily cleansed of it by a little rubbing.

LARGE TIRES BEST—When choice of tires is possible the buyer should take the benefit of the doubt. A small tire, although cheaper to buy in the first place, does not give as good satisfaction, for the money invested, as a large one. It is readily seen that a small boot heel will wear out quicker than a large one, and tires behave likewise. A tire of large section on a wheel of large diameter presents a large surface to the road and is but little damaged by usage, whereas if but a small section is presented, the weight causes the rough road surface to tear away and destroy the rubber, quickly ruining the tire. Large tires on large wheels, therefore,

are not only a matter of comfort, but of economy. This fact is particularly true of the driving wheels, which are subjected to greater strains than the steering wheels, and should therefore be provided with larger tires. The use of large rear wheels is to be favored, for these must carry the major portion of the load and it is poor economy to use small tires on them simply to have all four tires alike.

Avoid Mud—Since heat softens rubber and water makes it cut easily, tires give best service in cold and dry weather. On a rainy day the tires are not only wet but the road surface may be so soft as to expose sharp points imbedded in the solid earth beneath, which points readily do damage to the rubber and it is a matter of common experience that tire troubles more usually occur in bad weather. Care should be exercised in driving to avoid mud and hot sun as much as convenient.

WINTER USE EASY—While admitting the above, many people think that winter use

is exceptionally hard on tires, whereas the reverse is really true. The carpet tacks and bits of glass so frequent in the summer are often buried under a layer of clean snow in the winter. The sprinkling cart fiend is absent and the gutters are frozen solid, thus presenting not only safe surfaces but fairly level ones for winter use; while there is no heat to soften patching solution and give trouble on this account. A careful record of mileage will show most tire troubles during hot and wet weather and least during cold weather. If the vehicle is not used during the winter it should be lifted on jacks so as to remove the weight from the tires and the air pressure in the tires should be reduced considerably to avoid any unnecessary strain on the fabric. Care should be taken to see that they are not in proximity to heaters likely to damage the rubber. They should not be overdamp, for it rots the fabric, nor overdry, for it cracks the rubber. Tires should be well cleaned before wintering the machine.

DEVELOPMENT BRIEFS

Imports of August—According to the latest returns, ninety-two automobiles, valued at \$331,782, and \$30,393 worth of automobile parts were imported into the United States during August. During the 8 months ending August 198 cars, valued at \$715,836 and \$47,101 worth of parts, were imported.

Experimental Car Ready—The experimental automobile which has been for some months under construction at the plant of the Ellis Omnibus Co. at Cortland, N. Y., has been completed and will soon be tested out. The engine is the invention of Thomas Kennedy, a former employe at the Franklin works at Syracuse. Others interested are D. W. Van Hoesen, Dr. E. M. Santee, John Dowd, W. W. Bennett, E. E. Ellis and C. F. Weiler.

Foreign Idea of Elegance—Director General Wickler's 40-horsepower Metallurgique car, the body of which was built by George Kruck & Co., of Frankfurt-on-the-Main, Germany, was awarded first prize for elegance in the recent competition at Homburg. The Kruck tonneau is a kind of limousine, yet so artistically fitted up that all windows can be flapped upward and made fast beneath the roof. The back seat affords accommodation for three persons, that opposite, furnished with arms, for two. Neither driver nor mechanic has any just cause to complain on the score of comfortable sitting, as each seat may be described as a veritable easy chair. Leather upholstery has been employed for the interior, which is fitted up with a couple of cupboards, with wet goods, pharmaceutical case, with bottles and glasses, two movable arm-slugs, folding tables, speaking tube for communicating with the driver, ash trays, visit-

ing card pockets, a luggage net, etc., etc. On the ceiling is a powerful electric lamp. The travelers' boxes are stowed away behind on a brass support and fashioned to fit exactly into the back of the tonneau.

Two-Cycle for Olds—The Olds Motor Works of Lansing, Mich., is presenting to the 1906 trade a two-cycle, two-cylinder car. The cylinders are mounted vertically and will generate 20 horsepower. Special features in motor construction are an exceptionally small crank case, so that good pressure is had for forcing the mixture into the cylinders and peculiarly shaped inlet ports.

August Exports—The upward tendency of the American automobile export trade continues, the latest statistics showing that during August automobiles and parts to the value of \$260,853 were shipped abroad, as against a value of \$168,303 during the same month a year ago. During the 8 months ending August, 1905, these exports were valued at \$2,041,134, as compared with a value of \$1,322,499 during the same period of 1904 and \$1,049,311 for the 8 months' period of 1903.

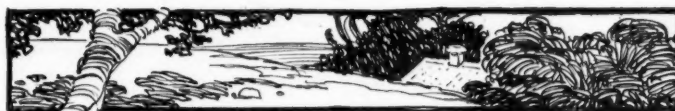
New Armored Cable—Herz & Co., of New York, have just brought out a new ignition cable. Several layers of rubber alternate with a secret compound and the whole is covered with an armor of steel, which protects the cable but does not interfere with flexibility. The outer steel armor is brought into conducting connection with the ground. This cable is sold cut to the length required and fitted with special terminals, ready to be hooked to the engine, either for primary or secondary.

Non-Fluid Oils—The New York and New Jersey Lubricant Co. calls attention to the impression that has been gained that its oils are of the nature of compression grease. The claim is made that the lubricants put out are in no sense of this character but are just what they are called, non-fluid oils, doing all that other oils will do and without the disadvantage of running or leaking.

Changes Hands—The Eureka Separator, a device for separating water from gasoline, is hereafter to be manufactured by the Winkley Co., of Detroit, Mich. The device was formerly manufactured by the Eureka Separator Co., of Rockford, Ill. The water, in passing through the separator, settles below a screen, while the gasoline passes through a screen, where an even flow of gasoline to the carburetor is assured. All other impurities, such as dirt, rust, etc., are taken from the gasoline in the process and the drain cock, at the lower end of the separator, enables the operator to draw off the water and dirt and clean the tubing.

Maxwell-Briscoe Plans—With two additional factories—one at Providence, R. I., and the other in a western city not yet fully decided on—the Maxwell-Briscoe Motor Co., with the main plant at Tarrytown, N. Y., announces it will produce at least 3,500 cars in 1906. They will be practically the same as this year's models, the company claiming to have found no weaknesses or any feature that required any radical change. One of the tests recently given one of the small stock cars

was a run from Boston to New York, a distance of 286 miles, in a little less than 11 hours on 12 gallons of gasoline, the average speed being 26 miles an hour.





means of an angular split, as used in this year's machines. The exhaust valves have long stems which at their bottoms screw into short seats that carry rollers, against which the cams bear. The use of push rods is in this way eliminated. To remove the exhaust valves, the inlet valves are taken out and then the exhaust valve stems are unscrewed from the seats. The inlet valves are directly above the exhaust valves and on the top part of the stem carry a piston working in an air cylinder, by means of which the opening of the valve is regulated. The air when admitted beneath the air piston hinders the opening of the valve and consequently the speed of the motor is reduced. To accelerate, a push button on the footboard cuts out the air from the air pump to the cylinder.

In the center of the cylinder heads is vertically mounted the spark plugs. Current comes from a 6-volt battery and one set of dry cells carried in a lock box on the running board. The commutator, on the dash, has a roller contact point working against hardened steel contacts. Near it is a four-vibrator spark coil and on the steering wheel is the spark control lever. For those desiring it a magneto for ignition is included in the regular equipment.

For motor lubrication an eight-feed Hill mechanical oiler is installed. It supplies all motor bearings. To the cylinder walls and bearings are separate leads, and the oil, after being used in the bearings, enters holes in the crankshaft and is conducted through it by centrifugal action to the crank pin bearings. The oil grooves in the piston are filled from the splash and distribute lubricant over the entire cylinder walls. On the dash are located the sight feeds, making it easy to watch the lubrication of the machine. In case the oil congealed in the tubes or oil pipes a pressure of 100 pounds is brought to bear upon the liquid to force it into the bearings. Within the oiler air pressure is not used but other pressure is resorted to, but air pressure is used in forcing the oil from the large oil tank to the oiler.

Water circulation is effected by means of a centrifugal, gear-driven pump carried on the motor. The radiator has vertical tubes and behind it is a fan, as well as fan spokes in the flywheel. On the radiator fan is a friction clutch, permitting it to start gradually when the motor starts quickly.

The carburetor, of Holley design, has the float concentric with the spraying nozzle. It is of the compensating type and is

THE offering of the Winton Motor Carriage Co., of Cleveland, O., to the automobile public for the coming season is a large touring car, to be known to the trade as model K. It follows Winton construction lines, as used this season, but differs in being fitted with jump spark ignition from storage battery, a Hill mechanical oiler, a new style of carburetor, new front and rear axle design and in the grinding of cylinder parts. Well known features retained are individual clutch transmission, air control of inlet valves, twin springs and vertical motor with cylinders cast in pairs.

The channel section side pieces of the frame are parallel throughout, being tapered toward the front and rear, where they terminate in long hook-shaped spring hangers. The motor and transmission are carried on drop cross pieces, dispensing with the use of a sub-frame. Four twin semi-elliptic springs are fitted, the rear pair swung beneath the frame pieces. All are shackled to the frame and spring hangers in the usual way. The front axle is new and made from I-section manganese bronze and drops from where the steering knuckles are carried to the center for crank case clearance. In the factory it is tested to a tensile strength of 90,000 pounds per square inch. On the axle are integral steps, on which rest the springs. The steering knuckles are of Lemoine type and Timken conical roller bearings carry the road wheels. The drive shafts in the rear axle extend from the hub caps to the spur gears in the differential and the shafts are so designed that when the hub caps are removed they can be withdrawn and the differential disassembled. This is accomplished by having the axle casing carry the total weight of the machine. Conical roller bearings are fitted throughout the axle and truss rods with turn-buckles for adjustment are connected with the ends of the axle casing and pass beneath the center of the differential casing. The top half of the axle casing, being removable, it is easy to inspect the differential gearing. The road wheels are 34-inch artillery pattern with 4-inch tires, and the wheel base is 8 feet 6 inches.

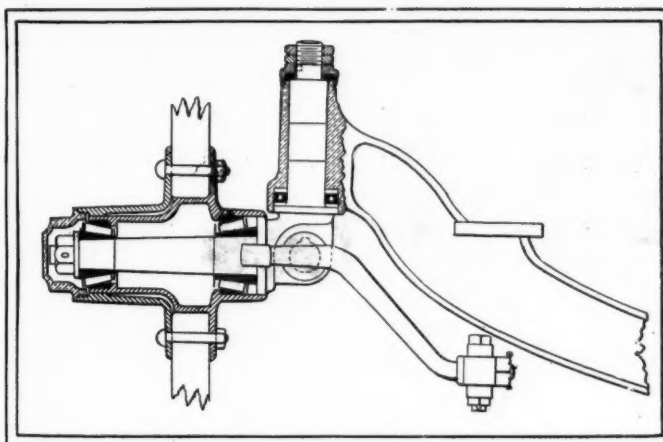
Four vertical cylinders, cast in pairs, and with a bore and stroke of $4\frac{1}{4}$ and 5 inches, respectively, are used in the motor. The rating is not given in connection with the machine, but at 1,000 revolutions per minute between 35 and 40 horsepower should be generated. The heads, water jackets and valve ports form an integral casting. The crankcase is split vertically, in line with the crankshaft bearing, so that half of it can be removed without interfering with the mounting of the cylinders and the crankshaft and pistons removed. In this removable side are two large inspection plates, one to each pair of cylinders, which are quickly removable, accessibility being one of the leading claims for the motor. The valve ports are on the right side, the automatic inlets being located in the top of the ports and directly above the exhausts in the port bottom. The camshaft is enclosed within the crankcase, and between the gear which it carries and all other gears are intervening fiber gears. The crankshaft is a three-bearing, drop steel forging. One of the noticeable changes within the cylinders is the grinding of the cylinder walls, the surfaces of the pistons, the piston rings and the valves, in defense of which the company claims better compression and easier movement. The arched-top piston remains, and carries on its upper end three compression rings and on its lower parts has oil grooves. The connecting rods are not split at the wrist pin ends, but fasten to the crank pins by



FRONT VIEW WINTON MODEL K

automatic in its working. Gasoline carried in a tank beneath the frame at the rear of the back axle is forced by air pressure to a small supply tank on the rear side of the dash, and from this tank the fuel flows direct to the carburetor. The pressure in the main gasoline tank is furnished by an air pump on the front end of the motor. The carburetor is not adjusted in controlling motor speed, it being first adjusted and then not resorted to, the spark and air-controlled inlet valves being the only motor regulators.

The individual clutch type of transmission comprises one of the unique features of Winton construction that has been retained. In the illustration the main shaft A is connected with the crankshaft through a universal joint Y adjacent to the flywheel so that when the motor is running the shaft is revolving. The propeller shaft B drives to the rear axle and C is the countershaft. The black, heavily-shaded parts, on the main and countershafts are gears which are always in mesh. It can be noted by the keys shown on the shafts which of the gears are rigid with the shafts and which run idle on them. Within three of the gears are cone clutches for locking loosely-mounted gears to the shafts. The transmission gives two forward speeds and one reverse. To obtain the direct drive the shaft A must be coupled with the shaft B. Rigid with A is the clutch D bearing within the gear E. The clutch is forced against E by the collar K being slid so that its ball forces the dog F against the disk G which in turn bears on the connection plug H, which pushes, through the gear O, against the clutch and forces it into the gear E, thereby causing the gear to revolve with the main shaft. But the part M of the gear is bolted to the casing, which unites through a universal joint with the shaft B and the drive to the back axle is accomplished. The cone N is used to assist cone D in driving to the gear E, so that danger of cone slipping is reduced by using two cones instead of one. For slow speed ahead the drive is from the main shaft through the gear O to gear P, which is made rigid with the shaft through the clutch R and then through gear Q to gear E and shaft B. For getting the reverse gear S drives to an idler Z and it drives into gear T secured through the clutch X to the shaft C, and gears Q and E complete the circuit to the shaft B. For operating the clutches two levers are needed: the inner one pushed ahead gives the reverse drive and slow speed ahead when drawn back and the other when drawn back gives direct drive and, when advanced beyond neutral, applies the emergency brake on the drive shaft. Small springs are used with each clutch for disengaging it when a drive is changed. The



WINTON STEERING KNUCKLE AND FRONT AXLE

entire gears and clutches revolve in oil so that when applying a clutch there is an oil film between the male and female part which has to be expelled before there is a positive drive between the two, permitting of a gradual application.

The propeller shaft is universally jointed in front of the differential casing. In the braking system are three external friction band brakes, two working on cast iron hub drums on the rear wheels are applied by pedal and used for regular use, and one on the rear end of the transmission shaft and operated by a forward movement of the high-speed lever serves for emergencies only. The placing of the regular brakes on the rear hubs is to save the machinery from all strain in the frequent application of the regular brakes.

The muffler, an improvement over this season's, is a cylindrical chamber with a double sheet iron casing, the casing parts separated by an asbestos lining. Within the chamber is a number of circular disks, practically equal to the inner diameter of the casing. Alternate disks have openings near their peripheries and the intervening disks near their centers, so that the ex-

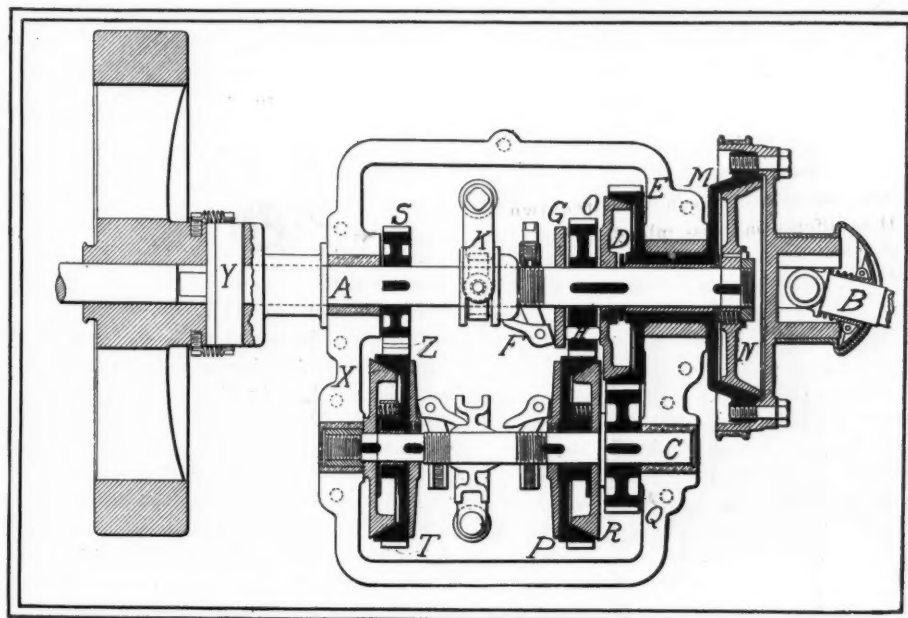
haust gases take a zig-zag course in passing through the muffler.

The control of model K is little different from this year's models. The levers at the right serve for giving speed changes and applying the emergency brake; in the footboard is a push button for regulating the opening of the inlet valves, and beside it is a regular brake pedal. The spark control lever is on a quadrant on top of the steering wheel.

The body design is similar to model B of this year, but the addition of a hollow metal dash and different side entrances as well as rear seat curves are noticeable. The backs of both seats slant considerably, but the upholstery is not heavily rolled above them. The running board and small fenders are adhered to. The finish is in green, maroon, red or blue, with different colors of running gear.

THE NEW POPE-TOLEDO

"Quiet-Mile-a-Minute Pope-Toledo" is the name of the new touring car to be put on the market by the Pope Motor Car Co. for the season of 1906, to be called the Morlee XII. As compared with the cars of previous seasons, the new car is described as having more power, more speed, more room, more style, more strength and less weight. In the motor design the company aimed to produce the greatest efficiency for the least weight in the construction of a gasoline engine. Without sacrificing strength, the engine to be installed in the 1906 car is a feature and the claim is made that a very remarkable result has been attained in securing 1 horsepower for every 10 8-10 pounds of motor weight. The motor is composed of four individual, twin-head cylinders, with copper jackets, and will develop



WINTON INDIVIDUAL CLUTCH SPEED CHANGE GEAR

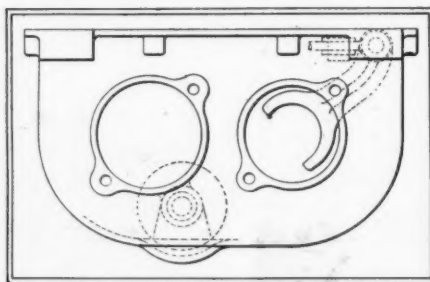
43 to 44 horsepower under brake test. The Pope-Toledo radiator is used and all gears are encased. The body design is entirely new. Having a double side entrance, the body is provided with a large, roomy tonneau. The front seat is divided.

The Pope-Toledo people have much to say about the steel used, all being forged at the Toledo plant, the axles being tested to 110,000 pounds tensile strength, while that used in the transmission is of 210,000 pounds tensile strength. There is direct drive on the high gear, with no idle gears in mesh. Side chain drive is retained. The tank holds 17 gallons of gasoline, designed to carry the car 270 miles. The wheel base on the new car is 104 inches, all four wheels being 34 by 4 inches in size. In the proportion of power to weight, the new Pope-Toledo car has 1 horsepower for every 54 pounds weight.

FOUR FRANKLIN 1906 CARS

Four models are offered for next year's trade by the H. H. Franklin Mfg. Co., of Syracuse, N. Y. These are known as models E, D, G and H—the first a light roadster slightly different from the light car of this season, the second very similar to the present large touring car, the third an entirely new model with four cylinders placed longitudinally, with multiple disk clutch, sliding gear transmission and shaft drive, and the last a six-cylinder machine with disk clutch and sliding gear transmission. The construction of the Franklin motor is different in many ways from the present style, but air cooling is adhered to, with all the valve cages provided with flanges. The leading innovation is the use of a sliding gear transmission and multiple disk clutch.

In model G, a description of which follows, ash sills form the side pieces of the



END VIEW FRANKLIN CRANK CASE

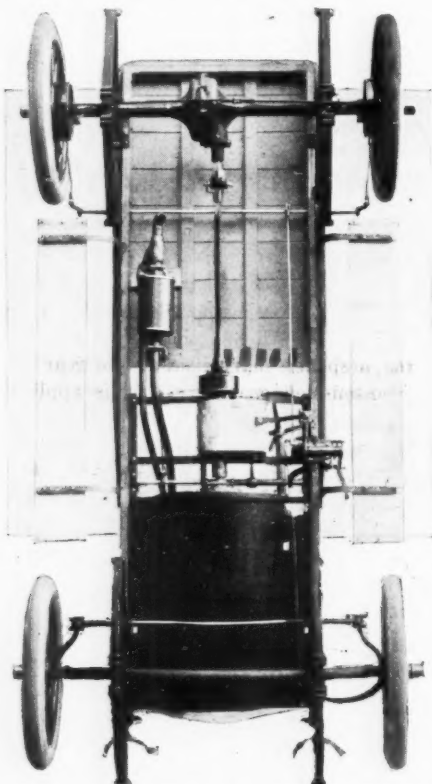
frame, which are suitably braced together. Four full elliptic springs, clipped beneath the axles, carry the frame. The front axle is made from nickel steel and is heavily dropped from steering knuckle to steering knuckle. The rear axle, of the divided type, carries the bevel gear differential in an oil-tight case in the center and the drive shafts revolve on roller bearings. Thirty-two inch wheels are used.

The 12-horsepower motor has four air-cooled cylinders mounted longitudinally beneath the bonnet. Each cylinder with 2¼-inch bore and 3¼-inch stroke is a separate casting, the walls, head and cooling flanges being made integral. In the head are two openings side by side, the forward one for the exhaust valve and the inlet valve opening just behind it. In the top of the cylinder wall, at the right side, is a spark plug opening, and near the bottom of the wall, on the opposite side, is an opening for the attachment of the casing carrying the auxiliary exhaust valve. The crank case, roughly speaking, is cylindrical in shape, with both ends, the top and one side left open. To the four top openings are bolted the cylinders, each by four bolts, in one side are two large inspection plates, for gaining access to the crank shaft and connecting rods, and on the ends are bolted the plates that carry the crank shaft and cam shaft bearings. From the side, the case has a corrugated appearance owing to it being slightly contracted between the cylinders for the carrying of a crankshaft bearing. The case is supported from the frame side pieces by horizontal cross angle pieces, one crossing between the first and second cylinders and the other between the third and fourth. These angles are bolted by two bolts each to the top part of the case and at their ends rest on angle pieces secured to the sides of the frame.

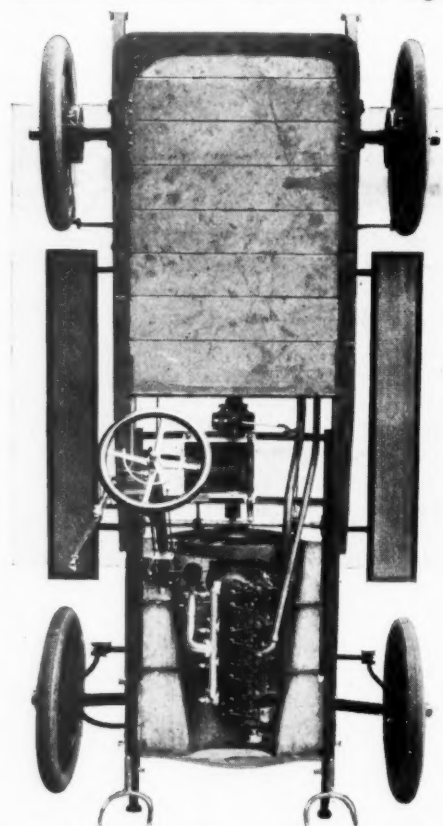
The crankshaft is a 1¼-inch steel forging with throws mounted at 180 degrees and revolves in five 1⅞-inch bearings, two at the ends and one between each two of the cylinders. The intermediate bearings are carried on pedestals, held in place by bolts passing through the base of the case. The pistons have flat tops, which with the level heads in the combustion chambers makes a perfectly cylindrical combustion chamber. Three compression rings are all above the wrist pin, which is of ¾-inch diameter and pinned to the piston journals. The connecting rods are made from I-section metal and bronzed and babbitted at both ends. The connecting rod

cap has a horizontal split with the connecting rod and is bolted and cotter pinned in place. Crank pin bearings are 1¼ by 1⅞ inches.

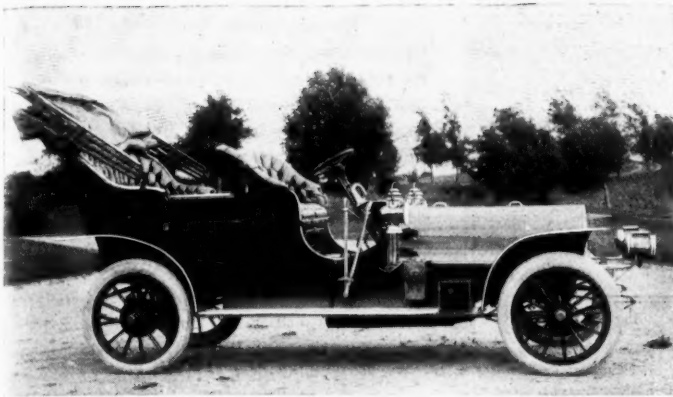
The mechanical inlet and exhaust valves are made of nickel alloy. Each valve sits in a valve cage, cooled by vertical, longitudinal flanges and held to the cylinder by a pair of screws. The cages are snail-shaped, with the large end opening meeting the openings in the pipe from the carbureter, and in the case of the exhausts, the pipe to the muffler. The cooling of the cages is new with this model. The pipe from the carbureter is a short vertical one which unites with a horizontal pipe lying as close as possible alongside the top of the cylinders, the openings in this pipe facing the openings in the valve cages. The exhaust pipe connection with the exhaust valves is of identical construction, two bolts holding the horizontal pipe to each valve cage. All valves have a diameter of 1⅜ inches and a lift of 11-32 inch. The stems are ⅝-inch diameter. The valves are ground to 45 degrees. Each is operated through an over-head rocking arm, one end of which rests on the top of the valve stem and the other end carries a vertical screw with a cone-like cavity in the bottom and in which rests the upper and pointed end of the push rod. On the camshaft are twelve cams, four for opening the inlet valves, four for the main exhausts in the cylinder heads and four for opening the auxiliary exhausts near the cylinder bases. This year's machines use automatic valves here, but the new models use the mechanical. The 1 3-16-inch auxiliary exhaust valves are ¼ inch above the tops of the pistons when at the bottom of the stroke. The cages



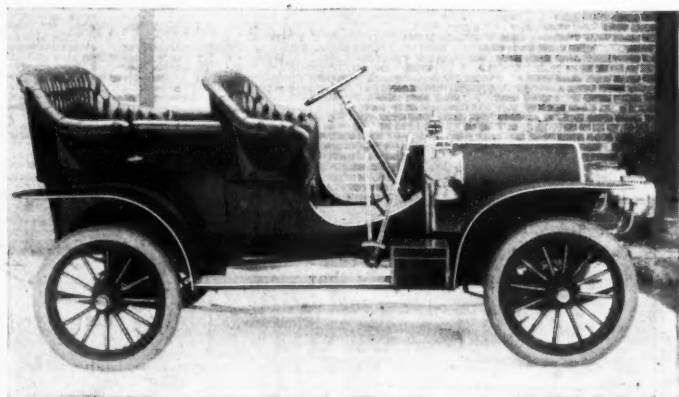
BOTTOM VIEW FRANKLIN MODEL G CHASSIS



TOP VIEW FRANKLIN MODEL G CHASSIS



MODEL H SIX-CYLINDER CAR



THE 1906 FRANKLIN LINE

MODEL G FOUR-CYLINDER CAR

carrying the valves are bolted to the side of the cylinders and are cooled by circular flanges. The pipes for the auxiliary exhaust extend 7 or 8 inches from the cylinders before they unite in the pipe running to the muffler, the object being to keep the hot muffler pipe as distant as possible from the cylinders. The object of the auxiliary exhaust openings consists in that the hot explosion gases which are directed downwards by the explosion reach the openings in the bottom of the cylinders and are blown out without having to ascend to the top of the cylinder, heating the cylinder walls and then passing out through the main exhaust valves. On the camshaft all cams are keyed in place and the shaft revolves on babbitted bearings. On the front end of it is the commutator pressed on in place and dispensing with the use of driving gears. On the dash is carried a standard coil to which current is furnished by batteries. The spark control lever is on a quadrant on the steering wheel. On the top of the steering column is a flat spiral thread around which is a sleeve to which the quadrant lever is attached. As the lever is moved from side to side the spiral raises or lowers the sleeve, which is connected by rod and bell crank with the commutator casing.

The multiple disk clutch is placed within the flywheel and is sufficiently small in diameter to allow of the flywheel spokes outside of it acting as fan blades for drawing the hot gases from around the motor. Eighteen disks are used for giving friction surface. They are arranged in two sets of nine each, one set being secured at their outer edges by keys to the flywheel, and the other set, alternated with them, fastened at their centers to a sleeve on the transmission shaft. One set of disks is made from phosphor bronze and the other from crucible steel. As the clutch works in oil there is always a film of oil between the disks before they are pressed against one another in engagement when the oil is gradually expelled and the clutch takes hold gently. The engagement is effected by a clutch pedal and springs, the latter for contacting the disks. With the releasing of the springs there is nothing to hinder the disks separating. The disks are 6¾ inches in diameter and 1-16-inch thick.

The sliding gear transmission, a departure

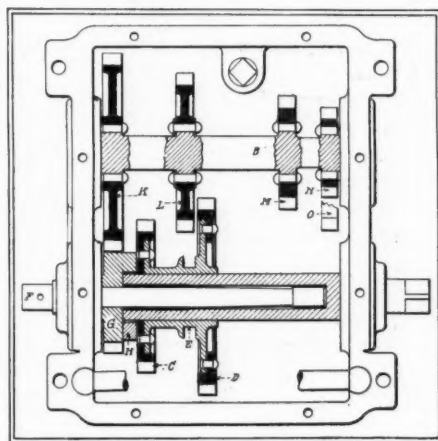
in Franklin construction, is carried in a compact aluminum casing bolted at the front and rear to two cross angle pieces of the frame. The main and counter shafts of the gearing are in the same horizontal plane with the former for direct drive, forming an axially connection between the clutch shaft and the cardan shaft to the rear axle. The counter shaft lies to the right of the main one. The entire gear case is open on top, eight screws being used in retaining the cover. The bearings, Hess Bright balls, support both shafts and are not carried between the gear case and the cover, but in cages bolted into openings in the ends of the case. The clutch shaft F has rigid with it the gear G, which carries dental face teeth H to mesh with similar teeth on the forward side of the gear C, which, being on the squared main shaft, which is coupled to the cardan shaft, gives direct drive. The pair of sliding gears C and D is slid by a yoke engaging with the collar E. The gears K, L, M and N are rigid with the counter shaft B revolving when it does and vice versa. Gear K is always in mesh with G, so that the counter shaft revolves on direct drive. For slow speed ahead the drive is through G, eighteen teeth, to K, thirty-three teeth, and from M, eighteen teeth, to D with thirty-three teeth, and to the rear axle, thus giving a heavy reduction. In the second speed ahead gears C and L are meshed, the latter has twenty-six teeth and the former twenty-five. For the reverse D meshes with O on a shaft in the bottom of the case, the re-

verse being due to O being constantly in mesh with a gear N of the same size on the counter shaft. It can be noticed from the illustration that in direct drive the pair of sliding gears is on the front of the main shaft; for second speed ahead they are moved back one space, for slow speed they are moved backward one space further and an additional space for the reverse. This obviates passing through gears when increasing or decreasing speed gradually, but should an operator wish to drop at once from direct drive to the reverse, two gears have to be passed through. The change of speeds is through a single lever at the right of the driver. Notches for each speed and the neutral position are on the quadrant within which the lever works. The gear shifting mechanism consists of a horizontal bar at the left of the case on which is a sleeve. To the center of it is pivoted one end of a short lever that in its middle is pivoted to the yoke engaging the collar on the sliding gears. The other end of the lever is pivoted to a lever extending across the top of the gear case over the main and counter shaft and the outer end of the lever is directly connected with the shaft carrying the speed change lever. The cardan shaft to the center of the rear axle is squared throughout its length and carries universal and sliding joints.

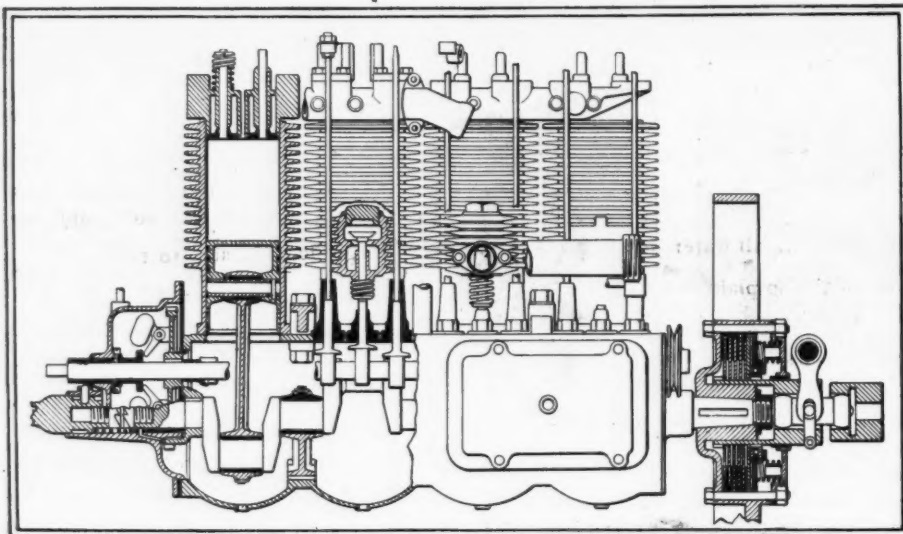
Three brakes are used, two of which are contraction bands on the rear hubs for emergency use. They are 8½ inches in diameter, 2¾ inches wide, and lever applied. The regularly operated brake is a friction band operating on a 6-inch drum on the propeller shaft just at the rear of the transmission-gear case. It is applied by pedal.

The body is conspicuous by a cylindrical bonnet terminating in a screen front, and has straight dash, angular side entrances and running side board. The front seats are divided by a low divider and the upholstering in front and rear seats is rolled heavily around the tops. The side entrance doors are hinged at the front side. The color, as with all of the machines, is optional, light running gear and green or red being leaders.

Of the remaining models D is a 20-horsepower car, of similar lines to the present large touring car. The motor is constructed



NEW FRANKLIN TRANSMISSION



SIDE SECTION FRANKLIN FOUR-CYLINDER MOTOR, SHOWING MULTIPLE DISK CLUTCH

similarly to that in model G, only larger. In the transmission is used the multiple disk clutch and sliding gears. The wheel base is 100 inches, the weight 1,800 pounds, and 32 by 3½-inch tires are used. The body has the cylindrical radiator, triangularly shaped side doors, semi-divided front seats and running side board, with the front fenders with inside enclosed to prevent mud spattering on the bonnet. Model E is the 12-horsepower light roadster with the four cylinders mounted crosswise in front and single chain drive to the rear axle. The wheel base is 81½ inches, 7½ inches longer than heretofore, and the body is correspondingly larger. The change speed lever is placed inside the car and slightly forward. Model H is the new six-cylinder machine, with 30 horsepower generated at normal crank-shaft speed. The cylinders have a 4-inch bore and stroke. The construction throughout follows the lines of model G, the motor, clutch, transmission and final drive being the same but of heavier build throughout.

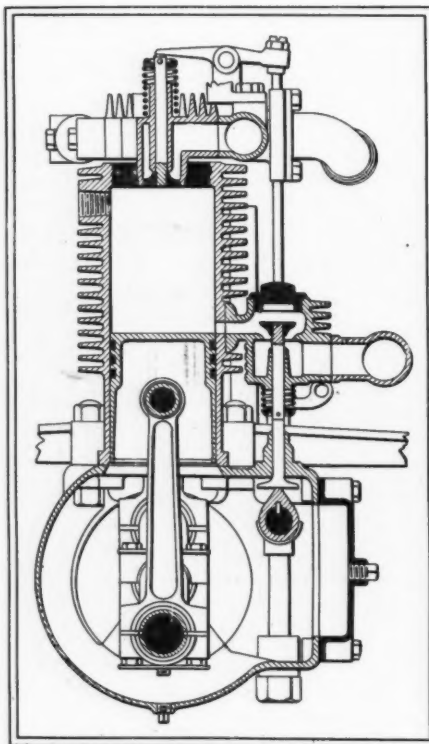
THE NEW STEARNS CAR

The F. B. Stearns Co., of Cleveland, O., has announced its 1906 model, a 40-horsepower machine. A large amount of imported material is used in the construction of the car and all material requiring strength is carefully analyzed and tested before being used; arrangements for such tests having been made with the Case School of Applied Science, a large institution located a short distance from the Stearns factory and which has complete laboratories and large testing plants.

The frame used, in the new model, is 5-inch section pressed steel, 13 feet long and trussed to give it maximum strength. The rear springs are six-leaf, 50 inches long and are guaranteed for 12,000 miles. The front springs are of the same pattern and 40 inches long. Practically the entire weight of the car is between the wheels, giving a long wheel base; 119 inches. Standard wheels are 36 by 1½-inch rear and 36 by 4-inch front, but 34 by 4½ all round is furnished optional to buyers.

The four cylinders are cast in pairs, with water jackets surrounding heads and valves. The valves are of large diameter and placed in pockets brought out to give sufficient space. Cylinder fit is obtained by a process of lapping the cylinders and pistons with crocus after they have been ground. In this process the cylinders are revolved as well as the pistons.

Ignition is by means of a positively driven high-tension magneto operated through gear from the cam shaft, but a high-tension coil is furnished where specified. The carbureter is of the two-part float type. A lever on the steering wheel operates a throttle on the intake and at the same time opens a butterfly air valve at the side of the air chamber, the two being set for a fixed relation to each other when the car is shipped. There is a fixed



END SECTION OF FRANKLIN MOTOR

air opening below the chamber and a third supply of air is obtained through an automatic inlet at one side, which operates as the suction increases. There is a main gasoline tank having a capacity of 28 gallons at the rear of the car and pressure in this is maintained by a pipe from the exhaust. This pipe contains a device for filtering and removing dampness from the exhaust, and there is a pressure regulator which, within certain limits, will regulate the pressure in the tanks. Gasoline is fed to a 2-quart auxiliary tank on the inner surface of the dash. This tank is provided with a float which gives a constant gravity feed of gasoline in the carbureter. Gasoline enters the carbureter at the top and sprays over the needle valve, thus keeping it clean at all times.

A large tank, for lubricant, is placed at the right side of the frame, accessible from the floor of the front seat. Pressure in this is maintained by a pipe to the bottom of the tank from the water circulating system. This scheme of supplying oil pressure has been used by the Stearns company for several years. Oil is forced to six sight-feed lubricators on the dash. A little refinement in this system is that each copper tube is provided with a goose-neck connection to the lubricator, so that by removing a couple of nuts, any of the leads may be removed, for cleaning and repairs, without interfering with the others. The motor and transmission bearings are lubricated by this system; other bearings either running in oil or supplied with grease cups.

The radiator, built by the Mayo Radiator Co., is built up of leaf copper and bolted to a cross member on the main frame. Surrounding it, but not touching at any point, is an aluminum housing, to which are attached the bonnet covers. By this means the radiator is not subjected to the strains which fall on the front of the car, and, it is claimed, that it will not rattle apart under severe usage. It is also protected against blows which usually break the radiator when the front of the car strikes an obstruction. Directly beneath it is a direct gear-driven centrifugal pump. By removing a cap below the radiator, this pump can be removed without touching the gearing or disconnecting any other parts. There is no other water tank, the circulating system being confined to the pump, pipes, jackets and radiator, having a capacity of about 8 gallons. A belt-driven fan, of large diameter, assists in the cooling, and an auxiliary fan is formed by the spokes of the flywheel.

The transmission is placed well back in the frame. It is an aluminum case, accessible from the floor of the tonneau and the gears run in oil. The transmission is of the selective system, it being possible to pass directly from any speed to any other, without passing through gears, and but one lever is used.

There are four speeds forward and re-

verse with the drive direct on the high speed. On any of the intermediate gears the secondary shaft operates but half as fast as the main shaft, instead of twice as fast, as in many transmissions. Two sets of the gear wheels are formed from single pieces to secure extra strength and wide surface in the hubs. Gear wheels are all No. 5 pitch, giving wide teeth, and they are made of Carpenter gear steel formed in Fellows shapers and tempered after they are formed. All bearings in the transmission axles and shaft are mounted on Hess-Bright imported ball bearings, which are of the two-point type and provided with oil retaining separators. A large bearing, of this type, is used on the shaft to take up end thrust. The shaft and rear axle are of Crome nickel steel tested to a tensile strength of 120,000 pounds per square inch. Heavy roller chains, at the sides, transmit the power to the rear wheels. The sprockets are covered so that they cannot be seen from the sides of the car.

There are two internal expanding brakes on the rear wheels, with an emergency brake having a 3-inch face on the transmission. The body is of cast aluminum with roomy tonneau and divided front seats. The finish is rich and the upholstering luxurious. The dash and floor plates are of aluminum, the latter having pebble tread.

MOTOR CAR LITERATURE

The Maxwell-Briscoe Motor Co., of Tarrytown, N. Y., has a 100-page book filled with commendation letters from owners of its machines.

Graphite, for October, contains an article on testing a steam plant, one on the use of graphite for rifles and another on the German automatic graphite cylinder lubricator.

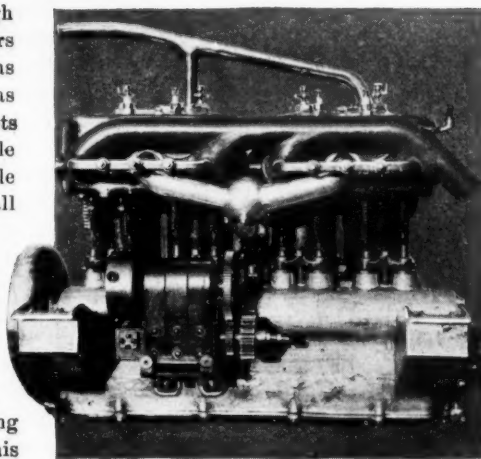
Cooke & Hoffman, 394 Wabash avenue, Chicago, are mailing literature on the non-thrust clutch, sliding gear transmission and opposed Phelps motor. Two views of the combination and a detailed description are given.

La Petite, model A, manufactured by the Detroit Automobile Co., of Detroit, Mich., is described in a small catalogue published by the manufacturer. The only illustrations are a front and a side view of the car.

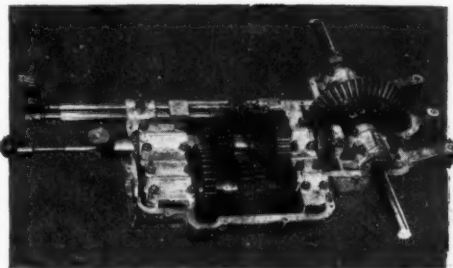
The Cincinnati Milling Machine Co., of Cincinnati, has a large catalogue in which all of its milling machines are shown in full-page views and the parts shown in smaller line drawings. Measurements of all parts of each machine are given.

The Winton Motor Carriage Co., of Cleveland, O., has in circulation a small advance booklet on its new model K. Illustrations are not used, but fourteen pages are filled with the new features of the machine.

Everything in the motor car accessory line is shown in the present catalogue of the Automobile Equipment Co., of Detroit,



STEARNS MOTOR, SHOWING MAGNETO



STEARNS SPEED CHANGE GEAR

Mich. The line includes chain boots, rain aprons, tops, brass trimmings, tires, lamps, carbureters, spark plugs, batteries, igniters, mufflers, tire casings, horns, tire pumps and other parts.

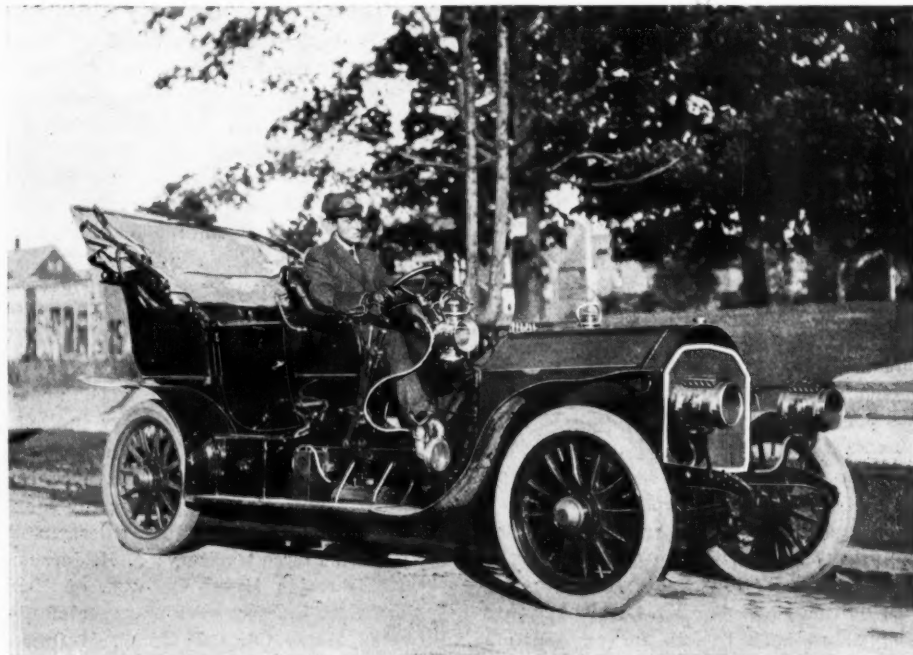
The Electric Appliance Co., of Chicago, is distributing samples of its paranite ignition cable for gasoline engines, samples of high and low tension wire being included. In addition it is mailing a catalogue of electric appliances, in which such parts as dry cells, spark coils, plugs, ammeters, switches, connections and pliers are included. Practically everything in the

accessory line is included in the catalogue.

The Detroit Auto Specialty Co., of Detroit, Mich., has just issued a booklet on its radiators and bonnets. In the former line are shown the flat tube, honeycomb, return coil with water tank attached and return coil with independent tank. Details of the construction of each are given. Bonnet styles include the collapsible, stationary, and those hinged at the front. A hollow metal dash, suitable for large cars, is also shown.

The Davis Mfg. Co., of Milwaukee, Wis., manufacturer of hardwood specialties, has a two-cylinder, opposed, horizontal motor for automobile purposes, which is illustrated and described in the latest catalogue of the company. The company also shows a steel bin for containing automobile parts, which would be useful in the parts department of a big factory. The bin contains fourteen concave shelves, each shelf being divided into eight separate compartments, giving in all 118 separate, good-sized shelves.

The Scandinavian Fur & Leather Co., of New York city, has issued one of the best catalogues yet circulated on automobile wearing apparel. The clothing illustrated is suitable for motoring, motor boating and hunting. Leather chauffeur suits come first, followed by chauffeur cloth suits, overcoats, storm coats and rain coats. In the fur department are shown all styles of full length coats as well as combination coat and trouser suits. Over a dozen designs of hats and caps are shown, as are complete displays of lap-ropes, boots, gauntlets, gloves and goggles. In the women's department are given all varieties of leather coats and skirts, cloth suits, plain rubber and satin-gum rain coats, dust coats in numerous styles, fur lines of many styles, head gears and goggles and veils, for summer and winter use.



THE 1906 STEARNS TOURING CAR AS IT APPEARS ON THE ROAD



PIERCE COMPANY'S AGENTS GATHER IN BUFFALO

Schebler in England—George Neil, 38 Fenchurch street, London, has been appointed English agent for the Schebler carbureter.

Barnes Now Secretary—Claire L. Barnes has been elected secretary of the Detroit Steel Products Co., He will also continue to act as manager of sales.

New Wayne Sales Agent—Jesse Draper, formerly of Peterson & Draper, has been named general sales agent for the Wayne car, made at Detroit, Mich.

Kingsley Changes—C. A. Kingsley, who has been identified with the Locomobile company for the past 3 years, will join the forces of C. S. Henshaw, the Thomas Flyer representative in Boston, next month.

Ohio Dealers Cleaned Up—Toledo automobile agencies report having sold about 300 new machines this season. One agent has a lone Waverley electric on his hands, but this is as good as sold, so the 1905 stock of automobiles in Toledo may be considered as fully cleaned up. About twenty different makes were handled by the different agencies.

Ford Branch for Buffalo—That the Ford is to be handled in Buffalo from a branch store is a certainty. The Ford company has leased the store in the Rich building on Main street next to the store just opened by the Continental tire people. The time for the opening of the Ford's Buffalo branch has not been set, but it is reported in automobile row that it will be very soon.

Reo's 1906 Output—R. M. Owen, sales manager of the Reo Motor Car Co., returned to New York last Saturday, having completed a western trip of 3 weeks, which had mainly to do with the establishment of Reo agencies for 1906 and extended as far west as Omaha, Neb. Mr. Owen says that ground has been broken for an addition to the factory at Lansing, Mich., which is expected to increase the capacity of the

plant to at least twenty cars a day, and estimates the 1906 output of the Reo at 4,000 machines of various types.

A Thomas Rally—A meeting of all the Thomas agents will be held in Buffalo at the factory this month to inspect the new models and exchange plans for 1906.

Cramer Changes Cars—J. A. Cramer, of Buffalo, who loses the Ford agency through the establishment of a Ford branch in that city, has signed contracts for the Marion and Premier for 1906. He may take other lines also.

Big Lot of Tires—One hundred sets of tires make an imposing array when piled up on the dock of the steamboat company, ready for shipment to America. The Continental Caoutchouc Co., of Hanover, Germany, recently sent a big consignment to its representative in the United States, the company of which Emil Grossman is the presiding genius.

Pike's Peak Roads Poor—R. E. Olds, president of the Reo Motor Car Co., with the idea of entering a 16-horsepower Reo in the Pike's peak hill-climb, recently visited Denver. An examination of the course, he declares, convinced him that it would have been quixotic for any car to undertake the climb, the roads being in an unsafe and impassable condition.

Pierce Agents Photographed—During the recent visit of the Pierce agents at Buffalo, when they talked over 1906 business, a photograph was taken of the men who sell the Pierce. Some of them lined up in front of the Albright art gallery in Delaware park and the camera caught them in this order, reading from left to right: Charles Sheppy, the Pierce company's experimental man; W. H. Ellis, salesman in the eastern Pierce territory; J. H. Jerome, of the Harrolds Motor Car Co., of New York; R. W. Slusser, sales manager of the Harrolds Motor Car Co.; J. W. McGuire, Boston agent; H. Paulman, Chicago agent; F. B. Bower, president of the Enterprise

Oil & Supply Co., Buffalo, N. Y., and then three demonstrators used by the Pierce company in making tests.

Gets Pierce Contract—The Autocoil Co., of Jersey City, N. J., has been awarded the contract to furnish all the ignition apparatus for the Pierce cars for 1906.

Hawley Switches—George E. Hawley, formerly associated with the Auto Equipment Co., of Detroit, is now secretary and general manager of the Gray Mfg. Co., 67 Larned street, Detroit.

Moves To Union City, Ind.—The Tritt Electric Co., manufacturer of automobile and gas engine specialties, has removed its plant from South Bend, Ind., to Union City, same state, where it has secured larger quarters in the building formerly occupied by the Union Automobile Co., which has removed to Anderson, Ind.

New Gear Company—The Barnes Gear Co. has been incorporated at Oswego, N. Y., to manufacture steering gears and other automobile parts. The capital is \$50,000, divided into 500 shares of \$100 each. The incorporators of the company are Charles O. Barnes, Marcia Barnes, Thomas Moore, Charles A. Bentley and Fred V. Murdock, all of Oswego. Mr. Barnes holds the patent of a steering gear which will be manufactured by the new company.

After a Boat Line—The Toledo Motor Car Co., of Toledo, O., is contemplating putting in a line of gasoline motor power boats next spring. The concern is looking for new quarters, hoping to have a building erected by early spring which will be double the size of the Madison avenue garage. In the event of the concern's success in finding a suitable location, a special section will be allotted and especially equipped for motor boats, another for electric vehicles, and another for gasoline cars.

Winton Car In Buffalo—Great interest was shown by Buffalo motoring enthusiasts in the exhibit in the special car of the Winton company, which reached that city on Wednesday morning of last week and remained until Thursday night. The Centaur Motor Co.'s staff kept a constant string of people going to the car as it stood in the railroad yards. The Centaur company has taken the Winton agency away from the Jaynes company, which had previously taken the Packard away from the Centaur people.

Temple Makes a Change—Ralph Temple, for the past 2 years representing the Franklin in Chicago, announced this week that he had given up the agency for that car and that for next year he would make his leader the Panhard, which he will import directly from France. He has also taken on the Reo, which heretofore has been handled in Chicago through an agency, the Reo Automobile Co. A third line, the Premier, will represent the air-cooling line. The Temple store is located at 310 Michigan avenue, and an innovation will be the removal of

the repair department to an adjacent building, so the big floor space can be devoted solely to the retailing of automobiles.

More Room Wanted—Although the Whitlock Coil Pipe Co., of Hartford, Conn., has doubled its facilities and put up a new building, which gives it 35,000 feet of additional floor space, it is considering the advisability of putting up another building of the same size.

Cutting Takes the Olds—Gen. John C. Cutting, well known as the organizer of one of the prominent metropolitan agencies, who retired last winter on account of ill-health, has entered the retail field again. He has secured the New York agency of the Olds Motor Works and has organized the Oldsmobile Co., of New York. Selling headquarters have been established in a commodious and handsomely equipped store at 1653 Broadway, formerly occupied by Frank A. Sanford, the Yale agent.

Hustle at Adrian—The Adrian Steel Co., of Adrian, Mich., which makes a specialty of crucible steel castings, is running a six-hole, twenty-four-pot furnace with a capacity of from 3 to 4 tons of crucible steel castings a day and announces that it is in receipt of many orders from automobile and gas engine manufacturers. The company is incorporated at \$30,000, with the following officers: G. B. M. Seager, president; E. N. Smith, treasurer, and B. M. Gardner, secretary and general manager. Many orders are at hand.

Mercedes Business—According to figures furnished the European edition of the New York Herald, C. L. Charley will have done \$4,000,000 worth of business for the Mercedes when the present year closes. He says he is planning to increase this to \$5,000,000 next season and has ordered 864 chassis from the Mercedes factory. Of this number he claims to have already sold all but 264, which will be handled for the Mercedes Palace in Paris. The Mercedes Co., of New York, is said to have ordered 175 of the 864; the Du Cros Mercedes, Limited, of London, 215; Mercedes Palace, Florence, Italy, 50; Paris agency B. Charles Wenzel, 50, and Paris agency C. E. Lamberjack, 40.

Quick Tire Change—The four men sent abroad by E. D. Winans, importer of Michelin tires, to learn the trick of quick tire removal and replacement, for employment in the Vanderbilt race, gave an exhibition last week at the Fiat garage, New York. The crew numbered three men to a wheel, and in the first trial they put on a new shoe and tire in 4 minutes 15 seconds, while in their second trial they reduced this time to 2 minutes 42 seconds. To remove the tire of a racing car, one man sticks a knife right through the shoe and inner tube to let out the air, while the other two men rip it off. A new shoe, with the inner tube partially inflated, lies close at hand, and while two men push and jam it in place the third man hands them the tools. Patent racing lugs are quickly

snapped on, and by the time the security bolts are fastened the tube is blown up ready for use.

Synnestvedt Increases—The capital stock of the Synnestvedt Machine Co., manufacturers of commercial and touring cars, has been increased from \$50,000 to \$100,000.

Trade Warned—The Automobile Cover & Top Mfg. Co., of New York, issues a letter cautioning the trade against the use upon automobiles of horns of the character of its Gabriel horn, threatening to prosecute all violations of its rights.

Another New York Garage—The Palace automobile garage was formally opened this week at One Hundred and Twenty-fourth street near Seventh avenue, New York. It is a two-story and basement building 50 by 100 feet. Edgar M. Houpt is president of the company.

Bob Garden in New York—The Harrolds Motor Car Co., of New York, will devote itself henceforth to the exclusive exploitation and sale of Pierce cars. Robert D. Garden, of Philadelphia, well known in Chicago in the bicycle days as Colonel Pope's western chief and later in the Quaker City as the Overman representative, has been installed as the new manager of the concern.

Mercedes Their Leader—Smith & Mabley, of New York, are to be the exclusive selling agents of Mercedes automobiles in the United States. These rights have been secured from the Mercedes Import Co., of which M. Weinburgh, the pioneer street car advertising agent and equally well known as a member of the Omega oil syndicate, is president, and E. C. De Witt is treasurer, the importing company having purchased the American rights from C. L. Charley, of Paris. Thus for the first time in the history of their importation the Mercedes cars will be handled from a single depot. This depot will be the great garage which Smith & Mabley have built at

Broadway and Fifty-fifth street and which will be taken possession of this week. Under the arrangement made with M. Charley, orders may be booked in this country for delivery abroad, and vice versa.

Moore Switches—G. P. Moore, who has for 8 years been connected with the Pope Mfg. Co., of Chicago, has gone to Pittsburg as manager of the Keystone Automobile Co. He succeeds J. P. Hanna, who is superintendent of the National Fireproofing Co., and was temporarily in charge of the Keystone.

Knepper as Manager—The Frayer-Miller Motor Car Co. has been formed to act as distributing agent for the Frayer-Miller cars in New York, Connecticut and New Jersey. H. H. Knepper has been installed as manager. The company is seeking a suitable site for the establishment of its metropolitan branch. Its temporary headquarters are at 941 Eighth avenue, New York city.

Building in Providence—Such rapid progress is being made on the steel frame of the new automobile plant of the American Locomotive Co. on the westerly end of the property of the Rhode Island Locomotive Co., at Providence, R. I., that it is expected it will be ready for occupancy early in November. The three-story building will be nearly 400 feet in length and 60 feet in width when it is completed.

Takes On French Car—The Palais de l'Automobile, of New York, of which Mr. Neubauer is general manager, has secured the exclusive American agency for the Delaunay-Belleville cars, which are made at St. Denis, France. These cars were first shown at the Paris salon last year. Their makers have one of the largest factories in France, which has long been devoted to the manufacture of various parts entering into the construction of well-known French cars. The headquarters of the Delaunay-Belleville cars will be at 500 Fifth avenue.



BIG LOAD OF CONTINENTAL TIRES READY FOR SHIPMENT TO AMERICA



BALANCING A MOTOR

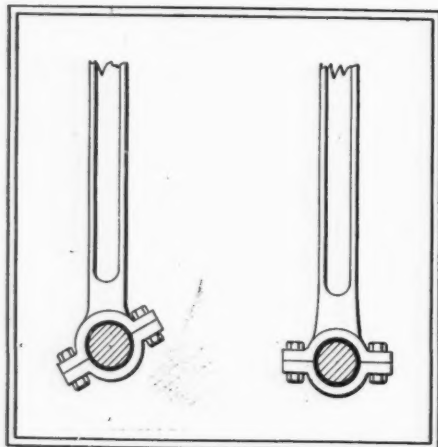
Bruin, Pa.—Editor MOTOR AGE—Will you please give, through the Readers' Clearing House, the best way to balance a crankshaft of a two-cylinder motor when the throws are together? Do you put counterbalance on crankshaft so the crank will just balance or do you use enough balance to offset the weight of the connecting rods?—E. D.

It is impossible to absolutely balance a reciprocating motor by rotating weights. The weights are usually applied to the crankshaft webs. On each web should be a weight, determined as follows: Multiply twice the weight of a crank web by half the crank throw in inches. Add to this the crank throw in inches, multiplied by the sum of the crank pin weight, five-eighths of the connecting rod weight, one-half the piston and pin weights. Divide the total by the distance in inches from the center of gravity of the counterbalance to the crankshaft. The result will be the weight of each counterbalance.

CONNECTING ROD CAPS

Syracuse, N. Y.—Editor MOTOR AGE—In the connecting rods used in some gasoline motors the cap at the crankshaft end is fitted obliquely to the end of the rod, as shown in the illustration, while in others it is attached horizontally. Is there any advantage in the former method of attaching the cap? What value is there in having the cap hinged at one side and secured at the other side by a bolt and not held by cotter pins?—J. C.

The proper use of the rod with an oblique split is when the design of the motor crank case renders the nuts more accessible, as for instance in the Winton type. Where these nuts are gotten at through a plate



TWO FORMS OF CONNECTING ROD CAPS

on the bottom of the case the split should be horizontal. A point not well taken, that has been brought up in favor of the oblique rod, is that in this case there is less thrust on the split and that the strain on the studs is more direct. A rod cap hinged at one end does not seem good practice, if the rod end bushing needs to be taken up.

MANY QUESTIONS ANSWERED

Stillwater, Minn.—Editor MOTOR AGE—Has any method of lubricating the cranks and other bearings in the crank-case proved more satisfactory than the splash system? I have started a design for a launch searchlight. I intend to have the dynamo generate currents at 80 volts, with a capacity of $1\frac{1}{2}$ kilowatts. The searchlight will consume about 10 amperes; there will be two 16-candlepower lamps for lighting purposes and three colored lamps for side and tail lights. I also intend to have two sets of storage batteries of about 6 volts each. Would it be practical to use the three colored lamps as a resistance for charging the storage batteries from the 80-volt dynamo? What percentage of their rated candlepower would the lamps burn? I intended connecting the three lamps in parallel and then in series with one set of the batteries. With a good reflector do you think the searchlight will be strong enough for all purposes? Many people think that when a dry battery is once exhausted it is worthless. They are mistaken, for they can be recharged two or three times. To recharge dry batteries drill six or eight small holes in the bottom of a cell. Then get some jars or dishes that are about 1 inch larger in diameter and two-thirds as high as the cell. Dissolve $\frac{1}{2}$ ounce of powdered sal ammoniac in the water so as to fill the jar. Then connect four cells of gravity battery in series and put the cells to be recharged in parallel with them and allow to remain over night. Wrap some sticky tape around the cell to cover the holes, and the cell is as good as new. Which is best, a two or three-blade propeller for a boat about 35 feet long with a 20-horsepower engine running at 900 revolutions and about what diameter and pitch should it be.—HARRY J. FORSYTH.

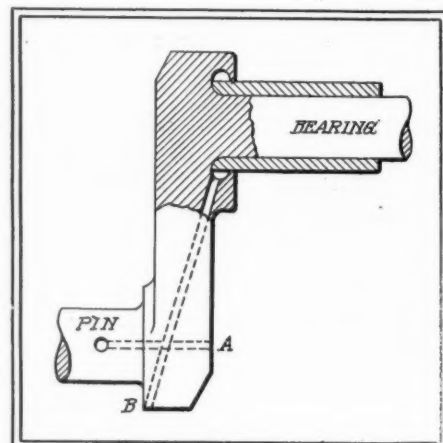
With the splash system a great deal of oil works into the cylinder and fouls the plugs. One maker uses oil in the crank case but not enough for the crank to dip. A wick is attached to the connecting rod end and it does dip in the oil and feed to the pin. Several makers use a scheme which carries the oil from the adjacent bearing to the crank pin. The construction is shown

in the drawing, which is self explanatory. After drilling the holes are plugged at A and B. With a good reflector the searchlight should give a good light, although not as good as the acetylene searchlights on the market, which are attached to a tank of compressed acetylene. The three lamps would not be sufficient, as it would take a long while to charge the batteries. The rate of charge—that is, the number of amperes to send through the batteries—will depend upon the battery capacity in ampere hours. The makers will give you the charging rate. Assume the rate to be 5 amperes and that each 16-candlepower lamp takes $\frac{1}{2}$ ampere, then it will require ten 16-candlepower lamps or five 32-candlepower lamps to obtain the resistance. Care must be taken regarding two things in connecting. The lamps must be on the positive side of the charging current and the positive charging wire must connect to the positive battery pole. To determine the polarity immerse both wires in water containing a little sulphuric acid. Bubbles will form at each wire, but on one much more rapidly than the other. The one which shows the greatest action is the negative pole.

RAILWAY INSPECTION CARS

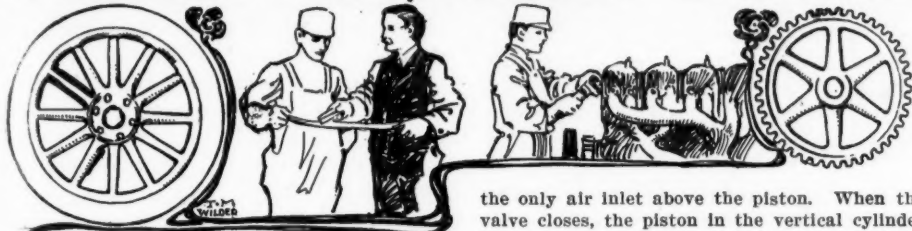
Cincinnati, O.—Editor MOTOR AGE—Can you furnish me, through the column of the Readers' Clearing House, the names and addresses of companies manufacturing automobiles for railroad use? When automobiles are used on the railroad, what is done with the steering gear after the flanged wheels are attached, and will the other parts of the machine require any special adjustments? I would like to know where I can secure flanged wheels for my car, or if it would be advisable to purchase a machine specially built for railroad use.—E. T.

When the automobile travels on a railroad track, as Mr. Glidden recently toured, the steering gear, of course, is not used and may be locked. The wheels must be flanged for the purpose. The Olds Motor Works and Waltham Mfg. Co. have made several inspection cars and they probably could arrange to furnish you wheels. With a flanged wheel there would be no necessity for any other special fitting on the car chassis.



A METHOD OF LUBRICATING THE CRANK

Current Automobile Patents



LETTERS patent No. 800,166, dated September 26; to Ralph L. Morgan, of Worcester, Mass.—The commercial truck of this inventor has a crane attached for assisting in unloading. The motor is placed anywhere beneath the platform of the car. Beneath the carrying platform is a cross shaft driven from the motor and on one end of this shaft, outside of the truck frame, is a capstan. The latter operates a jib-crane fastened to the side of the frame and which will swing over the load carried on the truck so that any of it can be removed and deposited on platforms either higher or lower than the truck. The boiler furnishing steam for the engine is carried on the front end of the truck. The same inventor has another device for attachment to his truck for aiding in unloading. It frequently happens that the platform of the truck is not on a level with the platform to which the goods carried have to be unloaded onto. To overcome this the truck is given a double bottom, the top one is pivoted to the upper ends of four short arms, one at either corner and the bottom of the arms are pivoted to the bottom platform. When the platforms are touching, these arms are resting at an angle. The front end of the top platform is connected to a piston working in a large horizontal cylinder beneath the driver's seat. Should the top platform be required to be raised to the level of the unloading platform, steam is permitted to enter the piston and the top platform is drawn forward, which movement raises it. In this manner it can be raised to any desired level.

Letters patent No. 800,614, dated September 26; to James R. Hubbard of Chicago—The invention relates a method of controlling the speed of a gasoline motor by restricting the opening of the automatic inlet valve. The illustration shows a horizontal motor with the inlet valve in the center of the head and the valve stem in a long cylindrical chamber. The end of the valve stem is connected through a lever and bell crank with a vertically moving piston in a vertical cylinder at the head of the chamber containing the inlet valve stem. The cylinder carrying the piston is closed at the top with a downwardly moving check valve, within which is a small opening. When the inlet valve opens it tends to draw down the piston in the vertical cylinder, which movement is restricted by the slow entry of air above the piston owing to the small opening, being

the only air inlet above the piston. When the valve closes, the piston in the vertical cylinder has a quick upward movement, as the whole top of the piston, being a lifting valve, opens, allowing a quick closing of the valve. The small opening in the top of the piston for admitting air on the down stroke of the piston can be increased or diminished according to the needs of the motor.

Letters patent No. 800,497, dated September 26; to Stanley W. Shaw, of Galesburg, Kan.—The invention relates to the construction of the crankshaft of a gasoline motor, so that an enclosed flywheel can be used. The crankshaft has a single throw, being intended for a single cylinder motor. At either side of the crank pin is a large metal disk, with which the pin is integral, and the crankshaft is also integral. To the outer side of each disk is bolted a separate flywheel, which works within the crank case. The connecting rod has room to work on the crank pin between the disks.

Letters patent No. 800,357, dated September 26; to Floyd Burnham, of Fresno, Cal.—The inventor's tire for automobile wheels consists of two tubes, an outer one serving as a casing and an inner tube in which is contained an endless rope made out of hemp or other material. The object of the inner tube is to keep moisture away from the rope and thereby preserve its life.

Letters patent No. 800,308, dated September 26; to Albert De Laski, Peter D. Throop and Henry Deck, of Trenton, N. Y.—The clincher tire described has lips of rubber similar to the ordinary tires, but on the inner sides of the lips are facing grooves, in which lies a band or ring of soft rubber for holding the lips in the rim hooks. The soft rubber ring is in turn retained in position by a ring of harder rubber, which is held in position by the inflation of the tire.

Letters patent No. 800,281, dated September 26; to William Esch, of Chicago—The inventors' device is an automobile ice harvester, with a rotating cutter driven from the motor of the machine. The frame of the machine is rectangular, like the ordinary automobile frame, with the rear wheels used for propelling and the front wheels for steering. The cutter is driven by chain from the differential jack shaft. The steering wheels carry a central ridge on the tread to increase adhesion and on the rear wheels are metal disks for engaging with the ice for driving.

Letters patent No. 800,418, dated Septem-

ber 26; to Richard Varley, of Englewood, N. J.—The device is for controlling the spark and throttle of a gasoline engine. The circuit is opened by one mechanism and closed by another, both of which can be worked at any time in relation to each other or simultaneously. Arrangements are also included to throttle the explosive mixture to the motors at the opening or closing of the circuit. By shifting both the closing and opening mechanism the cycle of the engine can be altered.

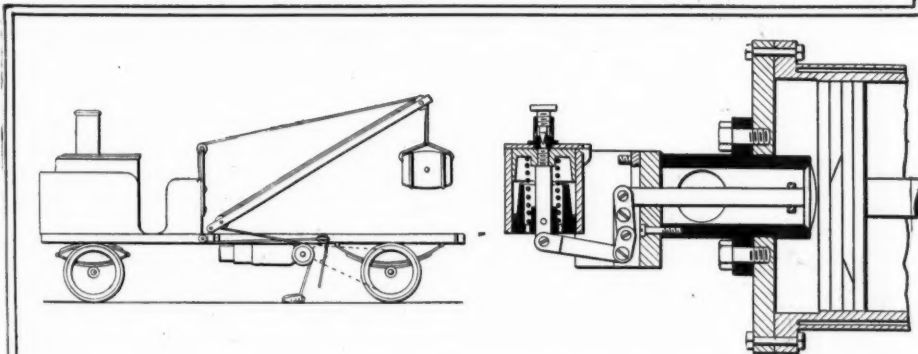
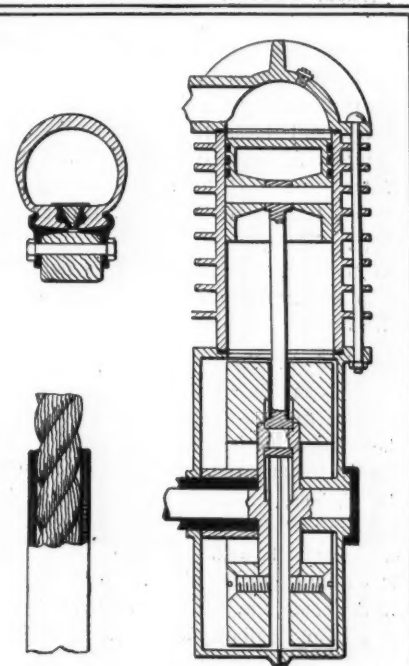
Letters patent No. 800,269, dated September 26; to Thomas P. Corbey, of Columbus, O.—The device is for aiding in the removal of cushion tires. It consists of a lever, of bell-crank shape, with one arm serving as a handle and the other a tire engaging arm. Pivoted to the angle of the lever is a hook arm for engaging the vehicle wheel.

Letters patent No. 800,372, dated September 26; to Andrew J. Haskell, of West Bethel, Me.—The invention is a spark-igniter—starting mechanism for gasoline engines. The hammer-blow igniting mechanism is in the cylinder head and operated by a shaft paralleling the cylinder bore and carried on the side of the cylinder. On this shaft is a cam that works the inlet valve and is connected with the igniting device. This cam carries the igniting device until a certain instant, when it is released, permitting the spark to occur.

Letters patent No. 800,572, dated September 26; to William B. Hayden, of New York, N. Y.—The inventor has a mechanism for preventing the backward movement of the rear wheel of an automobile when ascending a hill and in making a stop when the brakes refuse to hold. Fixed to the wheel is a circular band, similar to the inside of a brake drum. In this band is a groove. On the axle is a spring-operated toggle that engages in the groove of the band. The toggle has a tooth which holds on the band and prevents back rotation but does not hinder a forward movement. The device is operated by a pedal, and when not applied does not interfere with the reversing of the machine.

Letters patent No. 800,570, dated September 26; to James Hartness, of Springfield, Vt.—The inventor has what he terms a compensating bearing for road wheels of vehicles or other revolving parts. The shaft tapers but the journal does not. Between the journal and the shaft is inserted a tapered bushing.

DE LASKI'S TIRE



MORGAN'S TRUCK

HUBBARD'S GOVERNOR

BURNHAM'S TIRE

SHAW'S MOTOR

From the Four Winds



SEEKING ROAD INFORMATION—AN EVERY DAY OCCURENCE IN THE COUNTRY

Near the Mound City—Pretty bits of country roads are numerous around St. Louis. A motoring party in a St. Louis car recently investigated these picturesque highways with a camera, several fine views rewarding them for their trouble.

Some Farmers Progressive—Farmers who are not motorphobists are being discovered every day. In fact some of them are modern enough to attempt to educate their horses to recognize the automobile as an established institution and is willing to give out road information to the motoring touring party, while he shows the horse there is nothing to be afraid of in his greatest rival—the modern automobile.

Whoa, Dobbin!—The Automobile Association of Center County, Pennsylvania, has been organized with the following officers: President, George C. Watson, State college; vice-president, A. C. Mingle, Bellefonte; secretary and treasurer, Robert F. Hunter, Bellefonte. Executive committee, George C. Watson and C. D. Fehr, State college; John Porter, Lyon, and Robert F. Hunter, Bellefonte. The purpose of the association is not to antagonize horse owners but to promote the benefits of horse owners mutually with that of automobilists.

Latest in Furs—London furriers have gotten out their fall styles for motoring women. As seen in the cut on the next page, the woman in the car is wearing a coat of woolly cream serge, semi-fitting at the back, though loose in the front, with large sleeves widening at the cuff, which turn back and are fastened with a large pearl button. The lining is of squirrel, the sleeves being of the same fur, with wind cuff. The other coat is of Russian pony skin, the back piece being made from a single skin, with the natural dark line of the animal's back running down the center. Squirrel also com-

poses the lining and a deep beaver collar and wide cuffs give it a wintry touch.

Dig Up Hatchet—The automobile war is in full operation again in Grand Rapids, Mich., the flying squadron of the police department having started the ball rolling by arresting four automobile drivers. Although the motorists have made no sign as to what their course will be, it is intimated that there will be something doing in a short time. There are several automobile cases awaiting trial in the circuit court, these having been appealed from the police court.

Quakers Wideawake—The Automobile Club of Philadelphia's tours and runs committee, which has charge of the preliminaries of the hill-climbing contest and the annual cross-country run, is actively at work on the details of those events, both of which will be pulled off some time this month. The cross-country run, which will be for the H. Bartol Brazier cup, will this year be over a four-cornered course totaling about 100 miles, and from the number of entries already received will far exceed in importance those of former years. The hill-climb will probably be held on Chestnut hill, from the Missahickon creek bridge to the railroad station on Main street. Other courses are being



FRENCH PRESIDENT TRIES MOTORING

considered, but as Chestnut hill possesses all the necessary qualifications for such a contest it will probably be selected.

Out of the Ordinary—An unusual accident occurred to B. J. Wenchel, a Pittsburg chauffeur, the other day. His automobile collided with a fire plug, broke it off and the street for two squares was flooded for an hour before the damage could be repaired.

Loubet's Debut—President Loubet, of France, made his first public appearance as a motorist at the recent army maneuvers when he reviewed the soldiers from the rear seat of his new C. G. V. automobile. Many of the generals of the French army followed suit and motor cars were as thick as bears around a bee hive.

Graphic Trophy Race Off—A heavy fog accompanied by a rain prevented the running of the Graphic trophy contest on the Isle of Man, billed for the day following England's big Tourist trophy race. Twelve cars had been nominated and the contest was to have been over a 5-mile course. In all probability the affair will be pulled off on some course in the United Kingdom other than on the Isle of Man.

Hope for Kiser—Earl Kiser need not give up hope. Michael J. Dowling, former speaker of the Minnesota house of representatives, who is shy both legs, one arm and the fingers of his one hand, has just driven an automobile from Olivia, Minn., and return, a distance of 96 miles, in 7 hours. The car is equipped with special appliances so Mr. Dowling can use his artificial legs to advantage.

Doing Good Work—The Minneapolis Y. M. C. A. has enlarged its course of instruction for automobile drivers, and will endeavor to teach the principles of the gasoline engine, as applied to the automobile, in a very thorough manner. The course consists of twenty-four lessons, with lectures and practical demonstration. A complete equipment of apparatus has been installed, and the most prominent automobilists of the city have consented to co-operate in the conduct of the year's work. Walter Milnor, a recent graduate of the Throop Polytechnic Institute, is the instructor.

Prominent German Killed—The tragic end of Adolf Altmann, president of the German Motor Technical Society and a well known member of the German Motor Club, has cast a gloom over German automobile circles, where the deceased was held in high esteem not only as a clever engineer but also as a man. Herr Altmann died in harness. He and a Dr. Becher had been commissioned by a firm to be present at the experimental exhibition of a new carburetor by Engineer Schomburg for the purpose of reporting on its practical and commercial value. The exhibition took place in a cellar at Breslau. In the course of the exhibition a terrific explosion occurred. Herr Kauter, owner of the cellar, and the luckless inventor were killed on the spot; Herr Altmann and

Engineer Balzarek of the Gasmotorfabrik Deutz survived their terrible injuries a few hours only.

Wisconsin's Strength—According to the latest returns, the state of Wisconsin has more than 1,400 automobiles registered, of which number 410 hail from Milwaukee. Racine boasts fifty-six, Oshkosh fifty-four, La Crosse forty, and Madison thirty-eight.

Slow Pay—Ordinance Officer Murray G. Livingston and City Treasurer Steel are having their own trouble in collecting the city license fee from Pittsburg motorists. They have sent repeated polite requests to pay up, and, inasmuch as the city is "out" about \$3,000 yet on fees, they say their requests will be followed soon by a score or more of law suits.

Foxy Bridegroom—Attorney Charles S. Estabrook, of Syracuse, N. Y., recently outwitted some friends who intended to follow him with automobiles to the railway station after his wedding and there perform the usual rice and old shoe throwing act. Mr. Estabrook was married to Miss Marguerite Curry, the daughter of a millionaire widow, at the latter's home at Magnolia, Mass. The friends had three automobiles in which they intended to jump as soon as they saw that the bride and groom were preparing to go to the station. Mr. Estabrook bribed some of the servants and in the darkness proceeded to disgear and dismantle the automobiles. After the ceremony the bride and groom changed their apparel and stole down a ladder, jumped into their automobile and were soon speeding on their way to the station. When the jokers woke up to the fact that they had gone, they rushed for the three cars. The necessary levers were manipulated, but the machines refused to budge.

Farmers Boycott—There are several towns in Ohio where automobiles are prohibited, or seemingly so. In Fayette County it is reported that a movement is on foot to form an organization for protection against excessive speeding of automobiles on the public highways. Some of the farmers carry revolvers for the purpose of popping over drivers who won't listen or obey the wave of the hand in slowing down when meeting fractious horses or teams on the highway. Others resort to stretching barbed wire across the roadway in front of approaching automobiles. So strong are the farmers against the advent of the automobile that it is said that the business men of Washington Courthouse, the county seat town, are prohibited from buying motor cars, the farmers asserting that when the automobile comes in they, the farmers, will go out. Other towns throughout the state are likewise affected. At Benton Ridge, 10 miles west of Findlay, the same spirit prevails. Jacob Whisler, who conducts a large general store and has an extensive trade with the farmers throughout the country, was about to purchase a fine Winton touring



TWO SMART MOTORING COSTUMES

car during the summer, but he was politely informed by the farmers in that section that if he did they would withdraw their patronage. So he didn't.

After Better Streets—Members of the Automobile Club of America are urged by President Dave H. Morris to report to the new committee on city streets any New York pavements in bad condition, needlessly torn up or obstructed. The new committee has promised a needed reform in this direction and the club wants it to get all the necessary information.

Unknown Pays Fine—Chief Saddington, of Ogontz, Pa., who has become the terror of ordinance-breaking automobilists along the Old York road, north of Philadelphia, had the unique experience last week of being paid a fine of \$12.62 and not knowing from whom it came. A car drove up to his residence during his absence and the occupant, without a word to Mrs. Saddington, handed her the amount and whisked away

without leaving his name. The chief believes the money came from one of a number of Philadelphia motorists whose car numbers were caught and who were notified to appear before him for punishment for fracturing the local speed laws.

Antipodean Hill Climb—The Automobile Club of Australia recently promoted a hill climb which attracted fifteen competitors, divided into four classes. The Marobura hill at Coogee, near Sydney, was used, the course being about 500 yards, with the grade running from 1 to 4 and 1 to 12. There were two sharp turns. The competition for 6-horsepower cars and under was won by P. O. Sherwood, in a de Dion, in 3 minutes 14 seconds; the event for 8-horsepower cars and under went to P. Britz, in an 8-horsepower Richard-Brasier, in 2 minutes 40½ seconds; the third division, for 12-horsepower cars and under, to M. Maillard, in a 10-horsepower Richard Brasier, in 2 minutes 19½ seconds, and for the cars over 14-horsepower to O. G. S. Lane's 16-20-horsepower Martini in 1 minute 40 seconds.

To Amend Road Laws—In view of the present laws not providing for the building of new roads or the keeping in repair of those already constructed, the prosecuting attorney and the county commissioners of Lucas county, Ohio, of which Toledo is the county seat, will go before the next legislature with two bills, one providing for the building of new stone roads, the other creating a fund for the maintenance of those now constructed. It is proposed that the state pay part of the expense of constructing new roads, the county another portion, the township a third and the property owners who reside along the thoroughfare to be improved a fourth; that the farmers to be assessed according to the acreage of the farms. For repairs, it is proposed that crushed stone be placed in sufficient quantities along macadamized roads, and upon the discovery of ruts, the farmers may make repairs.



ONE OF THE GARDEN SPOTS TO BE FOUND NEAR ST. LOUIS

BRIEF BUSINESS ANNOUNCEMENTS

New York—Smith & Mabley have opened their new garage at Broadway and Fifty-sixth street.

Charleston, S. C.—The Sumter Automobile Co., of Sumter, has been incorporated with a capital stock of \$3,000.

Albany, N. Y.—The Gas Engine Whistle Co., of New York city, has filed articles of incorporation, with a capital stock of \$10,000.

Philadelphia, Pa.—Metzger & Wells are estimating on an automobile garage to be built at 220-222 South Fortieth street for F. K. Mears.

Chillicothe, O.—A new addition to the Logan Construction Co. is in process of construction and probably will be completed about October 20.

Los Angeles, Cal.—The Pacific Pneumatic Wheel Co. has been incorporated with a capital stock of \$100,000, of which \$90,000 has already been subscribed.

Hastings, Neb.—In addition to the Olds, which they handle in western Nebraska, L. C. Jones & Co. have taken on the Franklin. They will also build a large garage and repair shop.

Milwaukee, Wis.—An involuntary petition in bankruptcy has been filed against the Western Auto Supply Co., 235 Virginia street, the amount of the claims filed being \$559.75. No receiver was appointed.

Baltimore, Md.—A new garage is about to be built by M. Gillet Gill, at the corner of Mount Royal and Maryland avenues. Quarters for the Automobile Club of Maryland will be arranged on the second floor of the building.

Bay City, Mich.—A new automobile factory is to locate here. The work on the new buildings is to commence immediately. Seventy-five thousand dollars' capital is necessary to secure the enterprise, of which \$50,000 is already in sight.

City of Mexico, Mex.—L. G. Browne has applied for a concession looking towards the establishment of a bicycle and automobile factory. The petition promises a great reduction in the price of bicycles and automobiles, providing the concession is granted.

New York—The Manufacturers' Motor Car Co. has leased a large building at 65 West Forty-third street and is installing machinery for automobile repair work. It will deal in new and second hand cars. Ralph B. Notterman is general manager and L. N. Ellis is secretary of the company.

Birmingham, Ala.—The Van Dusen Motor Car Co. will soon erect a new garage, probably on First avenue between Twentieth and Twenty-first streets. There will not be a single post in the building, the large frame being supported by the walls. It is estimated that the building will cost \$10,000.

Minneapolis, Minn.—The contract to build a new garage for the Fawkes Auto Co., on Sixth street, has been awarded to J. L. Robinson. The cost is placed at \$20,000. The Fawkes Auto Co. is the name by which the Minneapolis branch of the Great Western Cycle Co. is known. The company has another branch in St. Paul.

New York—A new garage is being built on the site of the old Dakota stables, at Broadway, Seventy-fifth street and Amsterdam avenue, right in the heart of the apartment section of Manhattan. Preliminary plans have been prepared by the Ansonia Garage Construction Co., the capital stock being \$450,000. W. E. D. Stokes is president of the garage company.

Springfield, Ill.—The Illinois Automobile & Parts Co. has been incorporated with a capital stock of \$10,000.

Columbus, O.—The American Pneumatic Wheel Co., of Lorain, has been incorporated with a capital stock of \$50,000.

Pittsburg, Pa.—The Banker Bros. Co. has its new garage under roof, which will give it about as much space as it had in its old one.

Hartford, Conn.—The Palace Automobile Station has renewed its contract with the Thomas Co. and expects its first 1906 models next month.

Philadelphia, Pa.—E. C. Johnson, late of the Quaker City Automobile Co., will hereafter represent the White Sewing Machine Co. in Philadelphia.

Albany, N. Y.—The International Guayale Rubber Co., of New York city, incorporated with a capital stock of \$50,000, will soon commence business here.

Springfield, Mass.—The Springfield Automobile Co. is now located in its new place, the Cooley house garage, which it believes is the largest and best equipped in New England.

New York—The Mills-Kennedy Co., which has been incorporated to deal in automobiles, has for its officers: President, Edward P. Kennedy, 91 Commercial street; clerk, A. B. White, 84 State street, Boston; treasurer, A. Ernest Mills, 57 Columbia street, Brookline, Mass.

Rome, N. Y.—A company has been incorporated for the manufacture of automobile radiators, spiral tubing and other specialties. The capital is \$50,000. The name of the concern is the Long-Turney Mfg. Co., which is a branch of the Long Mfg. Co., of Chicago.



RECENT INCORPORATIONS

Oswego, N. Y.—The Barnes Gear Co. has been incorporated to manufacture steering gears and supplies for automobiles; capital, \$50,000. The incorporators are Charles O. and Marcla I. Barnes, Thomas Moore, Charles A. Bentley and Fred V. Mardock, all of Oswego.

Augusta, Me.—The Gearless Transmission Co. has been incorporated to manufacture motor vehicles; capital, \$500,000. Its president and treasurer is I. I. Fairbanks; clerk, L. A. Burleigh, both of Augusta.

New York—The Griswold Mfg. Co. has been incorporated to deal in automobiles; capital, \$25,000. Its president and treasurer is Robert G. Griswold; clerk, R. L. Tappenden, both of Quincy, Mass.

Albany, N. Y.—The Stoddard-Dayton agency, of New York city, has been incorporated with a capital stock of \$15,000 for the purpose of manufacturing and selling automobiles.

Boston, Mass.—Articles of incorporation have been filed by the Mills-Kennedy Co., which proposes to deal in automobiles. The company has a capital stock of \$50,000.

Albany, N. Y.—The Hydraulic Motor Service Co. has been incorporated with a capital stock of \$100,000. The company is located in New York city.

Hartford, Conn.—The Miner Garage Co. has been incorporated with a capital stock of \$10,000, to deal in, store and rent automobiles.

Albany, N. Y.—The Newcomb Motor Co., of Harrison, Westchester county, has been incorporated with a capital stock of \$400,000.

Springfield, Ill.—The Holyman Automobile Co. has increased its capital stock from \$350,000 to \$500,000.

Indianapolis, Ind.—The Premier Motor Car Co. has appointed W. Crosby, of Los Angeles, its agent for southern California.

Baltimore, Md.—J. L. Caldwell is about to build a one-story brick garage at Lovegrove and Adams alleys. The cost will be \$1,500.

Pittsburg, Pa.—The Pittsburg Motor Vehicle Co. has absorbed the Shadyside Vehicle Co. and is building a new factory on Summerlea street.

Philadelphia, Pa.—Plans have been filed by F. H. Krejler for an addition to the automobile garage at 220-222 South Fortieth street, for F. K. Mears.

St. Louis, Mo.—A. L. Dyke has organized the Auto Supply Co., with himself as manager. W. Mulford is president and T. Wright and E. A. Sluder stockholders.

Pittsburg, Pa.—A company has been organized to build a new automobile factory on Summerlea street. All kinds of automobiles are to be manufactured. A building to cost \$100,000 is to be erected.

Lockport, N. Y.—The American District Steam Heating Co.'s plant has turned out a big automobile truck, which will carry a load of several tons. The truck will be used at the North Tonawanda plant of the company.

Toledo, O.—T. C. Whitcomb, of Cleveland, who opened up a branch automobile agency at 811 Jefferson avenue, early last spring, has decided to quit Toledo, the agency being closed last Saturday. The Toledo field proved unsatisfactory.

New York—A new agency will be established to handle the Stoddard-Dayton car. C. H. Hill will be vice-president and general manager, and James McIlvrid is to be secretary and garage manager. The agency will open about November 1.

Dundee, Mich.—The Wolverine Automobile & Commercial Vehicle Co. was recently born for the purpose of manufacturing and selling automobiles, supplies, accessories and gasoline engines. The capital stock is \$28,000, divided into 2,800 shares, the controlling interest being held by H. J. Hunt, of Detroit. A plant will be erected at once.

Pittsburg, Pa.—The Hilland Automobile Co. is preparing to build an addition to its garage on Beatty street, opposite the club house. The new building will be 40 by 110 feet and will be double the capacity of the present garage, the company's storage now being 35 cars. The officers are: President, Dr. John A. Hawkins; treasurer, Dr. George Urling; manager, W. A. Richwine.

Nashville, Tenn.—The Southern Automobile Co., formerly capitalized at \$10,000 and having a garage on Third avenue, has been reorganized and a provision made in the charter for the capitalization of the company at \$100,000. W. J. Cummins is president and E. E. Sweeney secretary and general manager. The company handles the White, Cadillac, Stanley, Yale and Franklin.

Middletown, Conn.—A civil action which has been brought against William H. Kitto, president of the Simplicities Auto Co., has interfered with the purpose to wind up the affairs of the concern. The Warwick Cycle & Automobile Co., of Springfield, has brought proceedings against Mr. Kitto to recover \$1,000 loaned him, and the Simplicities company, which is indebted to him, is garrisoned for the amount involved.



American Motor League

OFFICERS

ISAAC B. POTTER, President,
Potter Building, New York.
CHARLES E. DURYEA, First Vice-Pres.,
Reading, Pa.
W. GRANT MURRAY, Second Vice-Pres.,
Adrian, Mich.
S. W. MERRIHEW, Third Vice-Pres.,
154 Nassau St., New York.
FRANK A. EGAN, Secretary,
132 Nassau St., New York.
FREDERICK B. HILL, Treasurer,
32 Binford St., Boston.

National Headquarters
Vanderbilt Building New York



THIS LEAGUE

Is Now Collecting Route Information

covering all automobile routes in the important states and will publish road books for motor car users as fast as complete information is received. The A. M. L. is the only organization engaged in this work, and it invites the co-operation of all persons interested. For full information and membership blanks address American Motor League, Vanderbilt Building, New York City.

OFFICIAL STATIONS

The following appointments of official stations are announced: Willows, Cal., Willows Cyclery & Garage, 441 Tehama street, Smith & Platt, proprietors; Dayton, O., Miami Motor Car Co., 117 East Second street; Stroudsburg, Pa., Stone's Automobile Works, 1009 Main street, Clarence Stone, proprietor. All proprietors of official stations are under contract which requires them to allow a discount of 10 per cent on all bills for repairs and supplies for American Motor League members, but this discount applies only to bills of \$1 and upward, and is allowed only upon presentation by the member of his unexpired membership ticket, which suggests the necessity of prompt renewals.

PROTECTION DISKS

Two stolen automobiles were reported at league headquarters last week. It is, of course, certain that these thefts will continue and increase as the use of the motor car becomes more general. The American Motor League protection disk tells its own story. It is shown by cuts on this page. It is covered with red leather and may be attached to the automobile without danger of scratching or marring the polished surface of the vehicle. The disk is supplied with a strong red silk cord which passes through a hole on the leather-cov-

ered tag, by which it may be attached to any convenient part of the car. The American Motor League will protect members from theft and from personal injury in every possible way. It offers \$100 reward for the conviction of any thief who steals an automobile bearing one of these protection disks, and \$25 reward for the conviction and punishment of any offender who injures the person or property of an American Motor League member while on the public roads.

IN CASE OF THEFT

The league, on receiving information of the theft of any registered automobile belonging to a member, will immediately send notice and full description of stolen car to the police authorities of the various towns within a radius of several hundred miles from the place of theft with notice also of the reward offered for the conviction of the thief. The name and address of the owner of the stolen vehicle will be given, and notice will be sent to him at once in case the thief is arrested or the vehicle recovered. Similar notice will be sent to the various dealers in second-hand machines who will be thereby warned against purchase of stolen vehicles and who will also be able to identify and detain the thief who offers the stolen property for sale. Notice will also be sent to the automobile papers, and to the prominent newspapers—there being a large number of the selected list at league headquarters—and every effort will be made in each case to recover the property and convict the offender.

ASSAULT CASES

In case of assault the member whose person or property is injured should at once secure the arrest of the offender and have him taken before the nearest magistrate. If necessary counsel can be secured, or the aid of the public prosecuting attorney invoked and the criminal thus brought to punishment. The reward of \$25 in such case will be paid only for the conviction which leads to the punishment.

NEW LEAGUE CLUB

The Monmouth Automobile Club, of Monmouth, Ill.—John S. Browne, president, and Alan W. Pattee, secretary—met last week and joined the American Motor League in a body. The Monmouth club will hereafter represent the league in all local work in the Monmouth district. The following members of the club have been appointed consuls: Will Bartlett, Cleo C. Duke, J. Ralph Firoved, W. H. Grooms, Morton Humphreys, William Mason, A. C. McIntosh, Rosecoe McKinley, Fred B. Pattee, Dr. A. G. Patton, James Root, George A. Schussler and Fred Weir.

Other consuls have been appointed as follows: Fred H. Waldron, New Haven, Conn.; Max Siepermann, Manhattan, N. Y. C.; Dr. William Martin, Bristol, Pa.; Arthur W. Clark, Conshohocken, Pa.; George F. Armsby, Vineyard Haven, Mass.; Henry E. Knapp, Menominee, Wis.; Newton H. Davis, LaRue, O.; Charles F. Keene, Beaver, Pa.; Oliver O. Jarrard, Mauch Chunk, Pa.; J. Elmer Wood, Beverly, Mass.; A. M. Haines, Bay City, Mich.; H. P. Strasbaugh, Aberdeen, Md.; Charles B. Kennedy, Madison, S. D.; E. S. Stearns, Thomaston, Me.; Arthur C. Jackson, Philadelphia, Pa.; Thomas T. Firth, Philadelphia, Pa.; Horace Brock, Lebanon, Pa.; and Fred M. Smith, of Hibbing, Minnesota.



WINTON

Economy of Up-Keep

A \$3500 car for \$2500—the new Winton Model K. A **thousand** dollars saved on purchase price.

And then you save on **Up-keep**.

Up-Keep is the price you pay for service—mileage—after you buy a car and pay for it.

Up-Keep includes the cost of Fuel, Oil, Repairs, Replacements, and Tire expenses.

All these items hit your pocket-book.

Therefore, **Up-Keep** is vitally important.

Now, let's consider Fuel and Oil.

The new Winton Model K saves fuel—

1. By the use of an economical carbureter, designed especially for the cylinder capacity, power and speed of Model K.
2. By using all the gas that enters the cylinders, and not wasting any part of it.
3. In perfect fitting bearings, which reduce friction.

Model K cylinders retain their charge over night. So, you can start the motor from the seat the next morning **without cranking**. That means you can stop your engine whenever and wherever you stop the car, thus wasting no fuel in unnecessary engine running. Also, it means that Model K cylinders are perfectly ground and **do not leak compression**. Cylinders not perfectly ground waste compression at every piston stroke, and that waste costs money—just like pouring expensive gasoline into a pail with a hole in the bottom. But Model K cylinders turn every drop of gasoline into **power** to propel the car.

But, even with perfect compression, as on Model K, your engine will waste power unless all bearings fit perfectly, are of right material, and have wide bearing surfaces. Every ill-fitting bearing means **friction**. To overcome friction the engine must use part of its power, and that power used to overcome friction can't be used to drive the car. That, too, is wasteful of money. You save all this by using a Winton Model K, for its bearings are large, perfectly smooth, and of material that shows least wear. A 50 h. p. motor with poor bearings eats more gasoline and oil and produces less traveling power than the 30 h. p. motor of the Model K.

Model K saves oil—

1. By being water-cooled.
2. By the use of the Precision Oiler.

Automobile engines are either water-cooled or oil-cooled (sometimes erroneously called air-cooled).

Water is cheap. Oil is expensive. Model K is water-cooled for that reason—for the same reason that one bathes in water and not in champagne. But, of course, there's no law against oil-cooled motors; you may use that kind if you don't care for expenses.

Then the Precision Oiler. Feeds oil to each bearing in just the exact volume needed. No waste through flooding seven bearings in order to give the eighth bearing just enough oil. Then this Oiler feeds oil in direct proportion to the speed of the motor. Thus when you run slow you are not wasting oil that the bearings do not need. Further still, this Oiler has **shot-gun force** and gets the oil to the bearings in any weather, even the coldest. Oil can't clog in the pipes. Each bearing fed separately, so that oil intended for any one bearing must reach that particular bearing. We have been studying oilers for 10 years and this Precision Oiler is the best we have ever seen. That's why Model K has it.

There are other ways in which Model K cuts down **Up-Keep** expenses. Let us tell you about them. Catalog No. 2 is ready.

THE WINTON MOTOR CARRIAGE CO., Member A.L.A.M. **Cleveland, O., U. S. A.**

Model K Trans-Continental Show now en route from Boston to San Francisco, visiting all the big cities. Be sure to see it.

INVOICE No. 10250

RECORD OF LABOR.					RECORD OF MATERIAL AND SUPPLIES.		
WORKMAN'S TIME SLIP NUMBER	NATURE OF WORK DONE	TIME		AMOUNT	STOCK ORDER NUMBER	DESCRIPTION OF MATERIALS	PRICE
		HRS.	MIN.				
6779	High Speed Connecting Rod & High Speed Piston	30	✓	30			
6799	Adj. Piston	15	✓	15			

LAST Spring Mr. Henry A. Lorenz of Buffalo, N. Y., purchased a Model F Cadillac of the Centaur Motor Co. of that city. After running it for some months, he decided to make a run to New York City, and as a matter of precaution, took the car to the Centaur Co. to have it "gone over."

These reproductions of the repair order and the postal card sent by Mr. Lorenz on his arrival in New York, show the expense and the result.

Dear Jess -
Got to New York
last night at 7 o'clock
with Cadogan all OK
Harry A. Browning
New York Aug. 14/05.

There may not be much in the Cadillac for the repair shop end of your business, but Cadillac dealers say there's a whole lot of satisfaction for their selling departments.

CADILLAC AUTOMOBILE CO., Detroit, Mich.

WHEN YOU PAY MORE

Model 4B



\$1500

An ideal touring car at an ideal price. 18-20 h. p. (4-cylinder vertical motor). \$1,500. One h. p. for every 85 pounds of weight. No radical features or untried devices for which you will have to pay for the experiments. It embodies the best features of the most famous cars, but it is different in at least one essential—price. A 4-cylinder touring car at \$1,500 seems unusual, you say? It is more than unusual—it's wonderful.

for a touring car or run-about than our price, you are paying for features which you get without extra charge in the

MITCHELL

It is not only "the car you ought to have at the price you ought to pay"

Model 2B



\$750

2 cylinder, 9 h. p., vertical motor, mounted in front. This Runabout is as carefully designed, as up-to-date and smart in appearance as any three or four thousand dollar car ever built. It has amp'e power for all conditions of road and its hill climbing abilities are unsurpassed. It is all that any man may want in a Runabout.

It is **more**. It is absolutely the best car—the most perfectly constructed—the most simple to operate and the most stylish in appearance on the American market. You cannot **possibly** do better than to buy a **Mitchell**.

WRITE FOR CATALOGUE

MITCHELL
Motor Car Co.
RACINE, WISCONSIN

Member American Motor Car
Manufacturers' Association,
Chicago

LIKE A HOUSE A-FIRE!



Like a house a-fire we have gone—are going—and will continue to go after 1906 orders of HOODS [any size or style] and

RADIATORS

Quality Best at the Prices.

Prices Lowest for the Quality.

PROMPTNESS OF DELIVERIES GUARANTEED.

What else can ANY buyer desire?

WRITE TODAY

DIAMOND STAMPED WARE CO.
DETROIT MICHIGAN

MICHELIN

Every important race in 1904-1905 in every country in the world was won on MICHELIN TIRES.

The largest tours made all over the world have been made on MICHELIN TIRES.

Each automobile wheel equipped with MICHELIN TIRES will carry more guaranteed weight than any other pneumatic tire made in the world.

Thus in racing, touring, and carrying weight, MICHELIN TIRES have proved beyond a doubt their superiority and the facts are incontestable.

MICHELIN TIRES cost more—They wear longer.

If you keep tabs on your tire expenses for one year you will find MICHELIN TIRES 50 per cent cheaper than any other.

MICHELIN TIRES do not rim cut—MICHELIN TIRES are safer.

Insist on MICHELIN TIRES for your 1906 car.

MICHELIN round tread touring shoes.

MICHELIN flat tread racing shoes.

MICHELIN Anti-Skid (not covered with leather) shoes
and above all

Get MICHELIN Tubes Para Rubber.

Don't be deceived and allow a slick salesman to tell you their imitation is just as good.

Write us or call.

MICHELIN TIRE AMERICAN AGENCY, Inc.

6 WEST 29th STREET

NEW YORK

E. D. WINANS, Gen'l Mgr.

Telephones: 760-761 Madison Sq.

Branches in all large cities in the United States

Rating Automobiles in Terms of Horsepower

of the engine is not a satisfactory method. The term "horsepower" really means nothing. The only correct comparison is one of Ability. **The Ability of a car is measured by the amount of power delivered to the wheels per 100 pounds weight of car.**

¶ When people ask us the "horsepower" of the Stevens-Duryea, we hesitate to tell them that it is 20, for the bare statement does the car a great injustice. The complete answer is that the actual weight of the Stevens-Duryea is 1650 pounds (and not a pound more)—that the engine is $3\frac{7}{8} \times 4\frac{1}{2}$ and develops 20 H. P. at 1,200 R. P. M.—that the mechanism is so efficient that we only lose 10 per cent of this power before delivering it to the wheels whereas the best of other cars lose at least 30 per cent, and some nearer 50 per cent.

¶ We then tell them that allowing a loss of 10 per cent leaves us 18 horsepower delivered to the wheels. Dividing 1650 by 18 gives 92—that is to say, the Stevens-Duryea gets one horsepower delivered to the rear wheels for each 92 pounds weight of the car. The best that other automobiles can show is 125 to 200 pounds per horsepower.

¶ The Stevens-Duryea owes its Ability to a new system of design—patented and known as the Unit Power Plant mounted on the car on Three Points.

¶ Our booklet explains all.

J. STEVENS ARMS & TOOL CO.

705 Main Street

Chicopee Falls, Mass.

Members Association Licensed Automobile Manufacturers



The NEW Type XII, 35-40 H. P.

POPE-TOLEDO

PRICE, \$3,500, FULLY EQUIPPED

Some advance and interesting data on the LATEST and GREATEST achievement of the WORLD'S LARGEST AUTOMOBILE PLANT.

MORE POWER, MORE SPEED, MORE ROOM, MORE STYLISH, MORE STRENGTH—LESS WEIGHT.

Every one in the trade the world over is now familiar with the unparalleled and unapproached record of the justly renowned Pope-Toledo. A few months ago we could not ourselves see that it was possible to produce a better car than that with which we have won every notable speed, endurance and hill climbing contest. But our wide experience, new methods, new and improved machinery, large quantities, and above all the highly successful culmination of experiments in specially treated steels which have been in progress for the past four years, have enabled us to produce in Type XII, a car that is a long step in advance of our fondest wishes or expectations.

Motor Four Individual, Twin Head, Cylinders, 4-cycle Copper Jacketed, developing under brake test 43 to 44 H. P. Water Cooled by the matchless Pope-Toledo Radiator. All gears encased.

In this space it is impossible for us to go into any deep exposition of the many points to be considered in producing the highest efficiency for the least weight in gas engine design. What has been accomplished in the Pope-Toledo in this respect might be tersely stated in the claim that in this now highly efficient motor the very remarkable result has been attained of **SECURING ONE H. P. FOR EVERY TEN AND EIGHT-TENTHS POUNDS OF WEIGHT**, and this, too, without in any sense sacrificing the strength or wearing parts. This proportion of weight to horsepower has not been achieved by any mere laboratory test, by running the engine at an impractical speed, but under the ordinary conditions which prevail.

Ignition Jump Spark, Coils and Batteries. Provision made for Magneto. Control is simple, flexible and positive. The car can be driven on high speed behind a team walking or up to its maximum speed, simply by the use of throttle and spark, both located on the Steering Wheel.

Control The Pope-Toledo Engine has been developed to such a point of efficiency that we are now able to run it from 200 R. P. M. to 1200 R. P. M., at which point it delivers its greatest efficiency. It is not only exceedingly quiet under all conditions, but the use of a scientifically constructed Carburetor gives great latitude of power to the engine at varying speeds. Heretofore Carburetors have been generally adapted to deliver their greatest efficiency to the engine at a maximum speed. The Pope-Toledo Carburetor is developed to such a point of fineness, that it is self-adjusting to all conditions of speeds, so that with the Spark and Throttle alone, and always on the high gear, you can drive a Pope-Toledo anywhere, taking all ordinary hills without rushing them and without shifting gears.

Transmission Transmission is of the Sliding Gear type, three speeds forward and reverse, being absolutely direct drive on the high gear with no idle gears in mesh. Ball bearings at all important points. The Transmission on Type XII is one of our great forward steps, mentioned above. The steel we use in this transmission, of 210,000 pounds tensile strength, will play a most important part in the future development of the Pope-Toledo. True, it is very expensive to make and still more expensive to work. By its use we are enabled to produce not only the lightest, but the strongest and most efficient transmission ever placed in any automobile. This steel is of the finest quality, more expensive and harder to work than any used by any maker in Europe. While it is true that some of the European makers use some very fine steels, we do not hesitate to say that the steel herein mentioned is superior from every standpoint which we have proven to our own satisfaction by every known test and by actual experience from using it in the cars themselves under the most severe and arduous road conditions.

Frame All steel Frame of few parts, tested to a safe load away above what is required. All steel, light, flexible and strong, making the car very easy to ride in, and easy on both tires and engine.

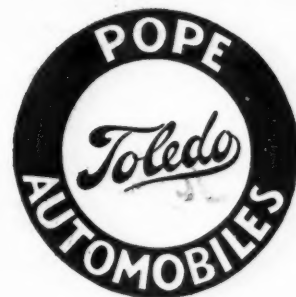
Double Direct Outside Chain Drive At this stage of automobile development, but few arguments need be advanced to show that on the score of efficiency, which means reduced friction, weight and durability, the chain system of power transmission AS APPLIED TO LARGE AND POWERFUL TOURING CARS, is a long way ahead of the Cardan Shaft from every standpoint. We give herewith a table of exhaustive tests conducted in France in the past year to determine this point.

It has been thoroughly demonstrated, and engineers are agreed, that bevel gears are not as high in efficiency as Spur Gears, and that Chain Drive shows greater efficiency, longer life, and less loss of power than either Spur or Bevel gear. Recent French experiments on the efficiency of Bevel gears, Spur gears and pitch chains, as applied to motor cars, prove beyond question that the chain drive is decidedly superior. The results of these experiments are as follows:

	New	Worn
Roller Chain, Lubricated and exposed to dust	94%	92%
Bevel Gear, Steel on Steel, Running in Oil Bath	88%	82%
Spur Gear, Steel on Steel, Running in Oil Bath	92%	90%
Spur Gearing, Leather Pinion, Cast Iron Wheel	88%	80%
Spur Gearing, Steel Pinion and Fiber Wheel	88%	80%
Spur Gearing, Steel on Steel, greased and exposed to dust	90%	80%

H. P., "Quiet-Mile-a-Minute"

TOLEDO



FULLY EQUIPPED

Chain drive is **decidedly** more flexible and **efficient**, requires **less care**, and on account of its flexibility, the motor and transmission and chassis are **not subjected to violent shock**. The matter of repair and replacement is **infinitesimal** as compared with bevel gears. You can tow a car with a broken chain, but you cannot do so with a broken bevel gear; and the older and more worn the gear the more power it consumes. Isn't it significant that in the elimination trials for the Gordon-Bennett Race, in which out of 70 or 80 cars the best three from each country were to qualify, that notwithstanding **over 50% of the entries were shaft driven**, out of the entire lot **only one shaft-driven car was able to qualify**. In the race **this car was not able to even make a showing** against all the chain-driven cars.

Brakes The Pope-Toledo system of Brakes is incomparable. Both foot and emergency brake act on the hubs of rear wheels, which are very efficient and easily adjusted to wear.

Gasoline Capacity 17 gallons, sufficient for 270 miles—from $\frac{1}{3}$ to $\frac{1}{2}$ more mileage for the same quantity of gasoline than any car in the world. Gravity feed to Carbureter.

Axles The Axles on Type XII are of the I Beam Type, FORGED IN OUR OWN PLANT of the best steel obtainable, being tested to 110,000 pounds tensile strength.

Wheel Base 104 in.—Standard tread, 54 in.

Wheels 34 x 4, front and rear. We make all of our wheels here in our own plant. **All wheels spoked and assembled by hand.** Ball bearings of large dimensions.

Body Design Entirely new and original, along beautiful lines distinguished and distinct. Double side entrance. Very large and roomy tonneau, **especially easy of access.**

Front Seat and Tonneau Of Mirror Finished Steel, large and comfortable front seat divided. Deep and heavy upholstery.

Hood and Guards Improved Hood, opening from either side. Guards oval shaped, **made of aluminum**, following curve of wheels. Front guards large and flaring.

Tires We shall adopt for regular equipment **the best tire on the market**, determined by observation and our wide range of experience. Rims also of standard sizes, admitting the use of any Foreign or Domestic tire.

Equipment Full set of lamps, horn, tools, floor mats, tire pump and jack. A very complete outfit **of the highest quality.**

Proportion of Horsepower to Weight Not further back than a year ago it was considered good practice to have 100 pounds of car weight to one horsepower. How much has been accomplished not only **without the sacrifice of strength**, but by **actually increasing strength and durability**, can be best understood by stating that the new model Pope-Toledo has **ONE H. P. FOR EVERY 54 POUNDS OF WEIGHT**. It seems unnecessary to produce any arguments as to what this means. Certain it is that one of the chief points must be in durability not only to tires (which of course is a most important factor) but also to **all moving and wearing parts**. Experience and deep study of the entire subject of automobile building have demonstrated that to attempt to make a car strong by merely increasing the size and consequently the weight of the parts, not only **does not constitute strength** but is actually **a source of weakness**, for the larger and heavier car is sure to contain within its weight **the germs of its own destruction**. We have aimed therefore to keep **the horsepower up and the weight down** without for a moment losing sight of the importance of strength and safety.

Weight Distribution With the weight more evenly distributed in this new model than ever before, it must become evident to any one posted in the art that a great deal has been accomplished not only for the **durability of the machine** but for the **tires themselves**. The even distribution of weight and strength, aside from motor design, has probably received more careful study from us this year than ever before, and has only been possible through the wide knowledge we have gained from the thousands of our cars in use and from whose performance we have been able to apply the proper result in the increase of power and reduction of weight, with increased durability and strength.

We also build Landaulettes, Limousines, and a Gentleman's Roadster of 20 H. P., four cylinders. **Special cars built to order of 20, 30, 35, 40, 50 and 60 H. P.** Further details given upon request.

20-25 H. P. DOUBLE SIDE ENTRANCE	-	-	\$2,800
30-35 H. P. FRONT ENTRANCE	-	-	3,200
35-40 H. P. DOUBLE SIDE ENTRANCE	-	-	3,500
50-60 H. P.	-	-	6,000

And upwards according to specifications.

Pope Motor Car Co.
TOLEDO, OHIO

SOLARS

SHOW THE WAY

Don't fail to see the

1906 MODEL

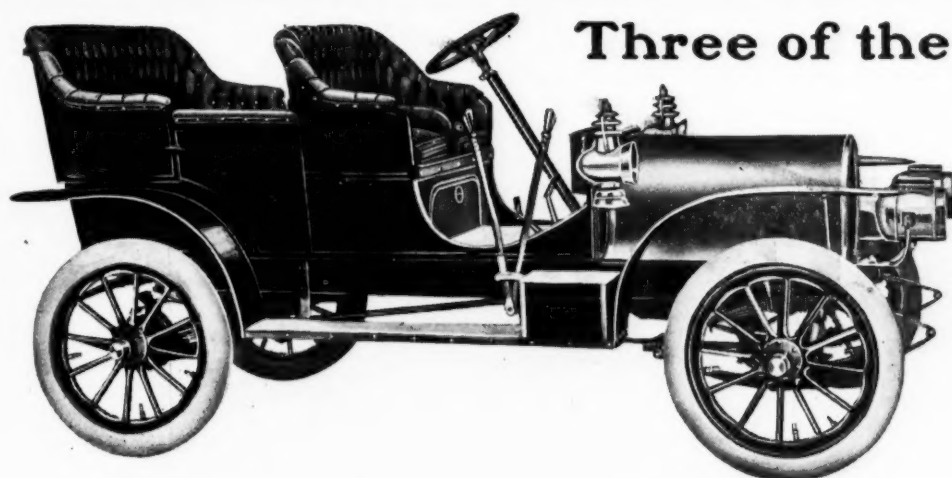
of

Solar Motor Lamps and Generators

Our Parabolens Projector is the most powerful and steady light producer made, and is the only one manufactured with optically correct focus of lens, light and reflectors.

We absolutely guarantee these lights perfect.

BADGER BRASS MFG. CO.
KENOSHA : : : : WISCONSIN



Three of the 1906 Models

Type G

The Big-Little Car

5-passenger Touring Car;
weight, 1,300 pounds; 35
miles an hour.

\$1,800

FRANKLIN

Type G, the new Big-little, Shaft-drive, Three-speed, Four-cylinder, Air-cooled, Side-door car carries 4 or 5 people over American roads more miles in a day or a year—and safer, easier and cheaper than any other car but a *Franklin*.

Small in weight, bulk and operating cost. Big in capacity and performance. A 12 "Franklin-power" engine which delivers up more actual "go" than the average car of 20 horse-power rating. Construction, material, springs and air-cooling that make all the power available on all roads all the year—summer and winter.

Costing 50 per cent more per pound to build than any other make of car and yielding 100 per cent more comfort, safety and enjoyment.

Type D. High-power Touring Car

This is another 1906 model, 20 "Franklin-power" car. It is the strongest car of its weight, and the lightest for its power. No car is more luxuriously comfortable, nor speedier on American roads.

Type E. 12 "Franklin-power" Gentleman's Roadster

As a business runabout; a superintendent's car; for a doctor or other professional man, or a suburbanite; for 2-passenger touring; or as a speedy roadster for the owner of a big touring car, there is nothing to compare with it.

It is an all-the-year-round car. No cold can freeze it. With air-cooling there's nothing to freeze. It needs no warm barn in winter, but stands always as ready as a saddled war horse, travels through snow like a plow; and when topped is perfectly comfortable in any weather.

It is the ablest, speediest, handsomest car of its type.

All three cars show a few detail improvements over our former models: Brake and clutch levers put forward—so that the driver gets in and out easily. Force-feed, wire-belt oiler on the dash. Ball-bearings on rear axle and transmission. And more effective brakes.

But not a single change or departure from the time-tried and victorious principles which make *Franklins* the coming standard American type.

"The Motor Car of the Future"

Send for book which describes all our 1906 models.

H. H. FRANKLIN MFG. CO., Syracuse, N. Y.

Member Association Licensed Automobile Manufacturers.

CHRISTMAS DIAMONDS ON CREDIT

THE LOFTIS SYSTEM AT CHRISTMAS TIME

is a great and timely convenience to thousands. It enables persons in all circumstances to make beautiful and appropriate Christmas Gifts with a very small initial cash outlay.

Everyone at Christmas time is anxious to give to their loved ones handsome Christmas Presents but it is not always convenient. The Loftis System of Credit, means convenience. Diamonds, Watches and Handsome Jewelry of all kinds for Christmas Presents on convenient terms.

You Are Welcome to Credit whether you are a moderate salaried employee or a wealthy employer. The Loftis System makes any honest person's credit good by adjusting terms to meet their earnings or income. Do not think that you must give a cheap, ordinary present because you can only spare a few Dollars just now. With five or ten Dollars for a first payment you can give Wife, Sweetheart or Mother a beautiful Diamond which will last forever, enhance in value and continually bring pleasant thoughts of the giver's generosity.

Love is the Real Santa Claus. It is love which brings the joys of a Christmas remembrance and a Diamond is the most appropriate of all gifts for a wife, sweetheart, sister or mother because it is the true token of love. It is the gift of gifts. Write today for our Big Handsome Christmas Catalogue.

Our Christmas Catalogue for this year will be the largest and most complete we have ever issued. Write for a copy today and glance through the wealth of Gems, Fine Watches and miscellaneous Jewelry illustrated on its many pages. Beautiful Xmas presents for all. Diamond Rings, Brooches and Pins for Wife, Sweetheart, Sister or Mother. Diamond Studs, Scarf Pins, Fine Watches, Charms, etc. for Husband, Father, Lover or Brother.

At your leisure in the privacy of your home you can select the Diamond, Watch or piece of Jewelry you prefer. Write us and we will send you any article you may select subject to examination and approval. Examine it thoroughly. You are perfectly free to purchase or not just as you please. We pay all charges. We take all risks. We deliver goods anywhere in the United States.

We invite you to open an account with us, become acquainted with the famous Loftis System. Remember it means convenience. Every transaction is on honor, prompt and satisfactory, one fifth the price to be paid on delivery. You retain the article, sending balance in eight equal monthly amounts direct to us.

Cash Buyers are welcome too, and we have an equally attractive offer for them, as follows: Pay cash for any Diamond, and we will give you a written agreement to take it back at any time within one year, and give you spot cash for all you paid—less ten per cent. You might for instance, wear a fifty dollar Diamond for a year, then send it back to us and get forty-five dollars, making the cost of wearing the Diamond for the entire year, less than ten cents weekly. No other house makes this offer. Write today for Christmas Catalogue.

Diamonds As An Investment are unexcelled. They are increasing in value every year. The Chicago Journal says in an editorial that they will advance twenty per cent in value during the coming twelve months. What other present is there so acceptable and so profitable? Write today for Christmas Catalogue.

Do Your Christmas Shopping Now. Do it conveniently and leisurely in the privacy of your own home. Don't wait until the Christmas rush is on. Now is the time to secure the choice selections and have ample time to inspect the goods. Write Today for our Big Handsome Christmas Catalogue.



A Test of Merit. In competition with the entire world at the St. Louis World's Fair last year our goods, prices, terms and methods won the Gold Medal, the highest award given to any exhibitor. No stronger endorsement of the Loftis System could be given. Write Today for our Big Handsome Christmas Catalogue.

Our Reliability. We refer you to your local bank, and they will consult their commercial guides Dun and Bradstreet and tell you that our responsibility and promptness are unquestioned. We give a signed guarantee as to the quality and value of every Diamond sold. Every Diamond we sell may be exchanged at full price at any time for a larger stone.

WRITE TODAY FOR OUR CHRISTMAS CATALOGUE.

LOFTIS DIAMOND CUTTERS
Watchmakers, Jewelers
Dept. M560 92 to 98 State St.
BROS & CO. 1858 CHICAGO, ILLINOIS, U.S.A.

**SAVE
A DIAMOND
DIAMONDS WIN
HEARTS**

**There will be a scramble
for the**

Thomas 1906 Flyer

**When you see it
you'll know why**

E. R. Thomas Motor Co.

Makers "Thomas Flyer" Automobiles

1202 Niagara Street

Members A. L. A. M.

BUFFALO, N. Y.

Motor Age Circulation

How Many of Our Esteemed Contemporaries
Can Show a Letter as Strong as This?

N. H. Van Sicklen, Manager MOTOR AGE, City.

DEAR MR. VAN SICKLEN:—We take no small amount of pleasure in enclosing herewith a little present for you in the shape of a contract for our next year's advertising.

It is a foregone and freely admitted conclusion that we will get our money's worth.

Very truly,

(Signed) MORGAN & WRIGHT,
Geo. C. Hubbs.



The above cut represents Post Office Receipts for 7,698 pounds net, of issue of September 21, 1905. Each paper, including wrapper, weighed an average of 11 ounces.

7,698 pounds divided by 11 ounces equals.....

We also sold, **non-returnable**, to Western News Co. and news stands direct.....

Mailed under stamps to foreign addresses.....

Retained for office sales and distribution.....

11,197 papers
647 "
89 "
350 "

Total for week of September 21.....

12,283 "

STATEMENTS PREVIOUSLY PUBLISHED.

Average weekly edition for July, 11,755—see page 38, August 24 issue.

August 17, page 42, statement for August 3.....	13,159 papers
August 24, page 39, statement for August 10.....	12,269 "
August 31, page 38, statement for August 17.....	12,176 "
September 7, page 29, statement for August 24.....	12,271 "
September 14, page 42, statement for August 31.....	12,518 "
	62,393 "

Average weekly edition for August, 12,468

September 21, page 32, statement for September 7.....	12,220 papers
September 28, page 46, statement for September 14.....	13,106 "
Including above for September 21.....	12,283 "

Total for 3 issues in September.....

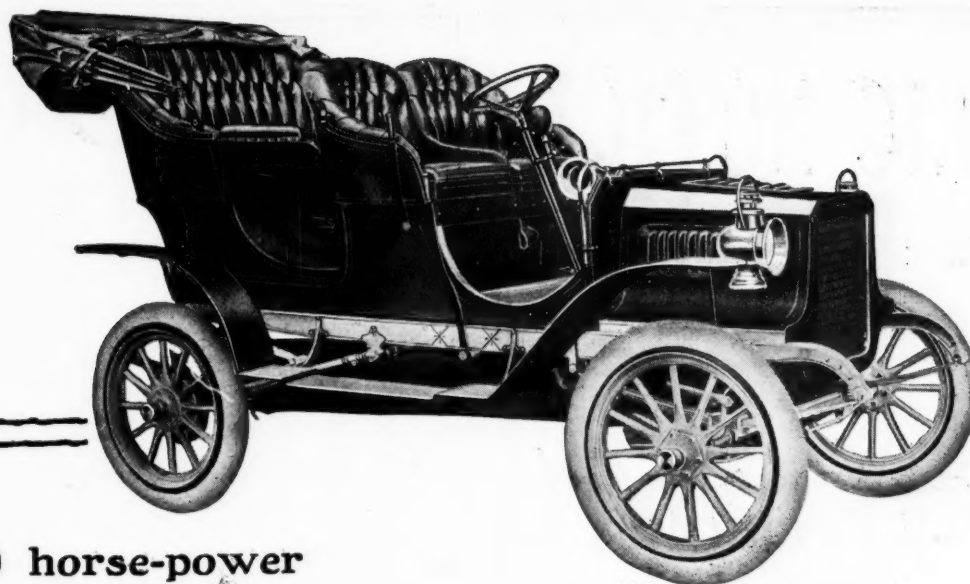
37,609 "

Average September issues, 12,536.

MOTOR AGE,

N. H. Van Sicklen

Manager.



The 30 horse-power

“REO Bird” at Syracuse

**Made a mile in 58⁴/₅ seconds
Broke the World's Record**

for middle-weight cars.

Beat 2 cars of 40 horse-power

and demonstrated that REO cars are

Built for What Happens

Los Angeles-Santa Barbara: 2 First Prizes

In the Los Angeles Dealers' Association Run to Santa Barbara and return, out of 58 starters and 42 finishers a REO Touring Car made a perfect score; won its class and cup; and tied for first place with two other cars of higher power-rating and price—one of them, a 24 horse-power car, costing \$2500.

REO 1906 Touring Car, 16 h. p., 1550 pounds, 90-inch wheel base, 5 passengers, side-door detachable tonneau. Speed, 35 miles per hour. **\$1250.**

REO 1906 Runabout, convertible into a 4-passenger car, 8 h. p., 900 pounds, 2 passengers, 25 miles per hour, **\$650.** Or, with folding seat to carry 2 extra passengers facing forward, **\$675.**

REO Motor Car Company

Sales Department, Lansing, Michigan

R. E. OLDS, President

R. M. OWEN, Sales Manager

Agencies throughout the United States.

PUBLIC NOTICE

Of Just What May Be

Expected of

1906

Diamond Wrapped Tread Tires

Was given by the Vanderbilt Cup Trials. Eight cars were equipped with Diamond Tires, and not a finger was touched to any Diamond Tire throughout the race.

B. H. Dingley, driver of the Pope-Toledo, first to finish said, "They are the best tires in the world. I cannot say enough of the satisfaction I have had from them."

Joseph Tracy, who drove the Locomobile finishing second, said, "My Diamond Tires gave me absolutely no trouble."

Robert Jardine, driver of the Royal, third in the Trials, said, "I cannot ask for better tires under any conditions."

Frank Nutt, the Haynes-Apperson driver, taking fourth place, said, "From start to finish I had no occasion to give my tires a thought. Their record was perfect."

The Diamond Rubber Co.

Akron, Ohio

BRANCH OFFICES.

NEW YORK.....	78 Reade Street
NEW YORK.....	1717 Broadway
BOSTON.....	174 Columbus Avenue
BUFFALO.....	715 Main Street
PHILADELPHIA.....	304-306 N. Broad Street
CHICAGO.....	1241 Michigan Avenue
CHICAGO.....	167-169 Lake Street
DETROIT.....	158 Jefferson Avenue
ST. LOUIS.....	3966 Olive Street
SAN FRANCISCO.....	608 Mission Street
MINNEAPOLIS.....	611 First Avenue S.
DENVER.....	1735 Arapahoe Street
CLEVELAND.....	323 Huron Street
ATLANTA.....	94 North Pryor Street

REMOVAL NOTICE



Situated on the highest point of ground in the State

The St. Louis Motor Car Co., makers of those deservedly popular and reliable

ST. LOUIS "RIGS THAT RUN"

has removed from St. Louis, Mo., to Peoria, Ill., where its factory facilities are seven times as great as in the old plant on Vandeventer Avenue, St. Louis

In St. Louis we had 16,000 sq. feet of floor space
In Peoria we have 105,050 " " "
YOU CAN FIGURE OUT THE DIFFERENCE YOURSELF

Agents who want to get in line for 1906
—and all others—address hereafter

ST. LOUIS MOTOR CAR CO.

PROSPECT HEIGHTS :: :: PEORIA, ILL.

Next year's output more than double this year's.
This will be good news to our agents.

HILL PRECISION OILERS

THE WINTON MOTOR CARRIAGE CO.

MANUFACTURERS OF WINTON MOTOR CARS.
CLEVELAND, OHIO, U. S. A.

ALEXANDER WINTON, President
THOMAS BENTON, Vice Pres.
Geo. H. BERRY, Secy. and Treas.

CARL ARNOLD
"WINTON" CLEVELAND
"WINTON" CHICAGO

Sept. 14, 1905.

The Steel Ball Company,
840 Austin Avenue,
Chicago, Ill.

Gentlemen:

In reply to your favor of the 12th inst., would say that Mr. Alexander Winton has always recognized lubrication as one of the most important problems to be solved by automobile builders.

It is safe to assume that the Winton Motor Carriage Company has devoted more thought and experimenting to this feature than any other automobile manufacturing company in the country.

For more than a year the Hill Precision Oiler has been subjected by Mr. Winton to the most exhaustive tests, both in our experimental department and also in exceedingly severe and prolonged road work. The most satisfactory results have been obtained, and as a result, believing it to be the most perfectly developed lubricating device yet produced, Winton cars will be equipped during the coming season with the Hill Precision Oiler.

Yours very truly,

THE WINTON MOTOR CARRIAGE CO.

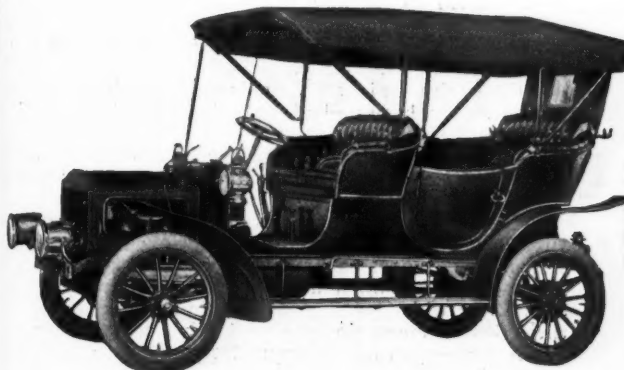
Charles D. Shaw
General Sales Manager.

THE STEEL BALL COMPANY

No. 837 Austin Avenue

CHICAGO, U. S. A.

The Incomparable WHITE The Car for Service



The splendid reputation of the White steam car is based on a record of five years of successful performance in all reliability and endurance contests, and of unequalled service in the hands of a host of private owners.

The new Model "F" White has met with the enthusiastic praise of all discriminating motorists. The new features include:

Graceful side-entrance body,
Long wheel-base,
Improved burner, giving added power,
Compensating brakes.

In order to appreciate its luxurious appearance, and its unique smooth-running qualities, you should arrange for a demonstration. Write to us and we will put you in touch with our nearest agent.

WHITE Sewing Machine **COMPANY**
Cleveland, Ohio

S. H. Boren Automobile Company

State Agents

FRANKLIN MOTOR CAR

369-371 Commerce St.

DALLAS, TEXAS, Sept. 6, 1905.

Continental Caoutchouc Co., 43 Warren St., New York.

Gentlemen: The writer has just returned from Buffalo, N. Y., where he finished a very good transcontinental run. We started from Dallas with a set of your tires which had been in constant use for five months, but these tires carried us through to Buffalo without a single puncture, or without requiring repumping. However, notwithstanding the fact that our route carried us through the roughest part of the Indian Territory and Missouri, we were out to make time, and we spared neither the car nor the tires, and consider that the tires performed in a most remarkable manner.

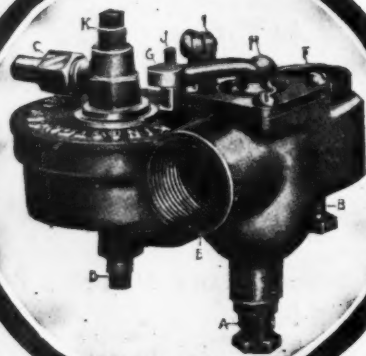
On our arrival at St. Louis we were informed by your agent that he had no tires in stock which would fit our car. We hesitated about going on with the tires in the condition they were, but decided to see just how much wear they would stand, and so did not renew any of them, although we had two extra tires in our hamper. We started from St. Louis running on the fabric, and the tires carried us to Buffalo without any trouble whatever, seeming to be in as good condition when we arrived at Buffalo as they were when we left St. Louis.

We have had the car shipped back to Dallas, and upon its arrival we will send the tires to you for inspection. The writer has driven automobiles for a long time, and has had lots of experience with different makes of tires, but this trip to Buffalo was an eye-opener, and the writer must confess that he does not believe there is a tire on the market that could have duplicated the Continental performances on this trip. We were primed for all kinds of trouble when we left Dallas, and carried extras in the way of casings and tubes and a variety of repair outfits, for which we expected to find almost daily use. Perhaps you can realize how remarkable it was to go through this long trip without having even to use the pump on any of the tires.

Assuring you of our appreciation of your skill in building tires, and thanking you for past courtesies, we beg to remain,

Yours truly,

S. H. BOREN AUTO CO.,
Per S. H. Boren.



KINGSTON

1906 TYPE-K- AUTOMATIC CARBURETOR

EASY TO UNDERSTAND EASY TO OPERATE

Fuel controlled entirely by equalizing automatic air valves.

Will increase POWER and CONTROL of any 1905 FORD or OLDS car, or money back.

Positively will not accumulate fuel in, or CLOG LONG INLET PIPES.

Perfectly adapted to gasoline cars, boats, airships and motors for any kind of service.

Built for business by the oldest manufacturers in the business.

OVER 29,000 KINGSTON CARBURETORS IN USE

KINGSTON MUFFLER



**IMPROVED
FOR 1906**

BYRNE, KINGSTON & CO.,

KOKOMO, INDIANA, U. S. A.

SATISFACTION and the OLDSMOBILE

Have you ever talked with an Oldsmobile owner? If so, you must have been impressed with the satisfaction he expressed with his machine. Users of Oldsmobiles are our best advertisers. You naturally grow to like a machine that gives you thoroughly satisfactory service, and you are glad to tell your friends about it.

At one time and another we have had a good deal to say about the Oldsmobile for doctors' use. Here's what one doctor says:

"My runabout has attracted considerable attention. *It always goes* and I am never delayed except occasionally on account of tires. I live on the top of a high hill, and cannot go anywhere without going up and down some long, steep hills. I am out in all kinds of weather. My car is practically as good as the day I bought it and it has had hard usage. *The expense of keeping it in order has been very small.*"

We have hundreds of letters along the same line and names and other information will gladly be sent on request. If you are interested in a machine for business or family use write us for further information. By calling on our nearest agent, you can easily arrange for a demonstration, which is the most convincing argument we can present. Send for Catalog 52.

OLDS MOTOR WORKS, LANSING, MICH., U. S. A.

Members A. L. A. M.

THE DAIMLER MANUFACTURING COMPANY
Announces that it is now ready to book orders for the

**1906 American Mercedes
Automobile, 40-45 h. p.**

THE ONLY AUTHORIZED COPY OF THE
German Mercedes

Our sole ownership of all patents, designs and shop drawings of our parent company—*The DAIMLER MOTOREN GESSELLSCHAFT of Unterturkheim near Canstatt, Germany*—for the United States and Canada enables us to make an exact copy, part for part, of the German machine. All the shop drawings of the 1906 GERMAN MERCEDES showing the latest changes and advances embodied in this celebrated car are now in our hands, awaiting your examination.

Price \$7,500

Save the Duty

DAIMLER MANUFACTURING COMPANY

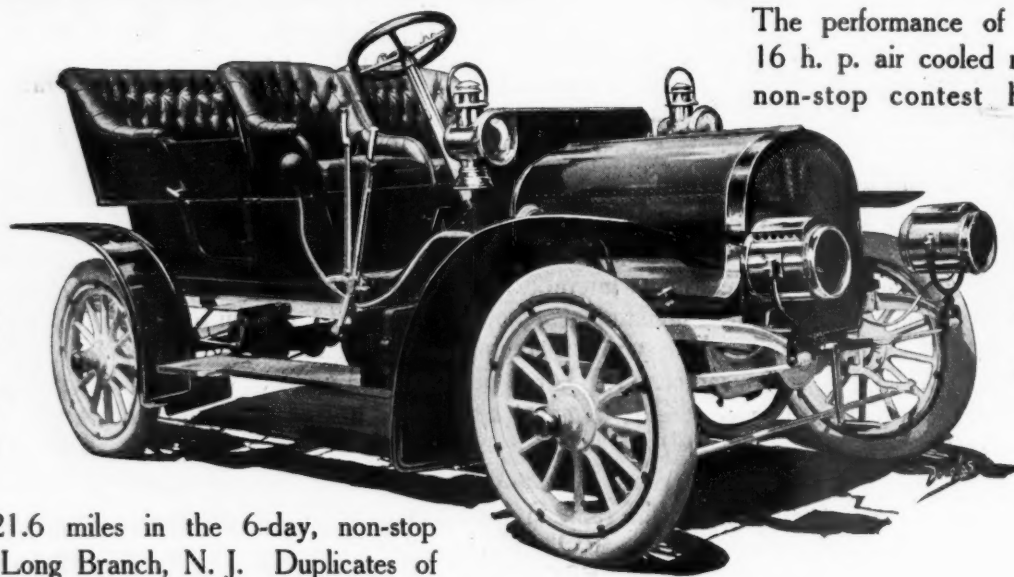
973 Steinway Avenue,

New York City Garage—10 West 60th Street.

LONG ISLAND CITY, N. Y.

CORBIN CARS

A stock
16 h. p.
Model D



The performance of the Corbin
16 h. p. air cooled motor in the
non-stop contest has forever
silenced the
opponents of

practical
air-
cooling

made 2,321.6 miles in the 6-day, non-stop
contest at Long Branch, N. J. Duplicates of
this car can be delivered promptly.

The Corbin Motor Vehicle Corporation NEW BRITAIN
CONNECTICUT

NEW YORK, 4 West 38th Street

BOSTON, 163 Columbus Avenue

PHILADELPHIA, 629 North Broad Street

PENNSYLVANIA CLINCHER

The value of a Tire is measured not by dollars,
but by the Odometer.

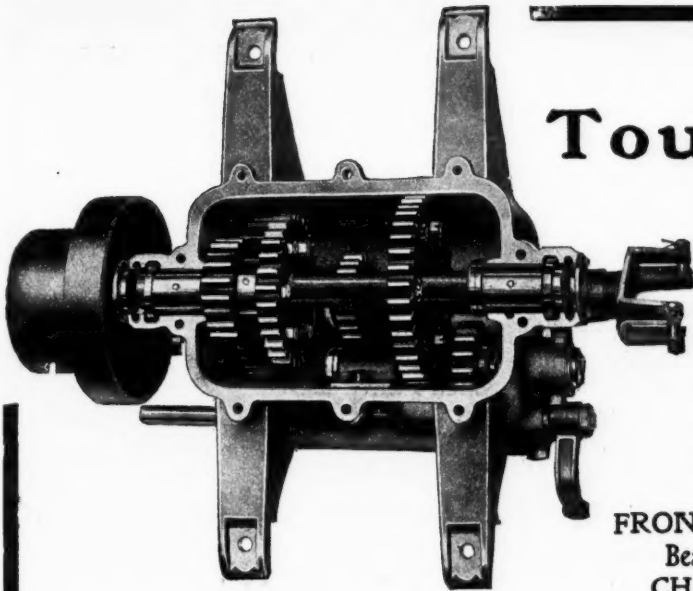
The Tire which travels furthest without repairs is
the most valuable to YOU.

The Tire which carries your Car softly over the
road is the most valuable to your MOTOR.

PENNSYLVANIA RUBBER CO.

JEANNETTE, PA.

When Writing to Advertisers, Please Mention Motor Age.



Garford Touring Car Parts

The great problem of the hour for the automobile manufacturer is to develop the details of his engine. This study is so absorbing and important that the duty of producing axles and other parts has been left to other specialists.

Our specialty is the manufacture of parts for the very highest class of cars—parts that are as good as life insurance. We make:

REAR AXLE: Independent Shaft Drive, Ball or Plain Bearing, Weight Carried Entirely on Axle Tube

FRONT AXLE: I-Beam Section Nickel Steel Bed, Ball or Plain Bearing

CHANGE GEAR

STEERING GEAR

CLUTCH

DISTANCE ROD AND BRACKET

PROPELLER SHAFT

LEVERS FOR EMERGENCY-BRAKE AND CHANGE-GEAR

Parts of one size are suitable for cars weighing up to 2400 lbs. and of 30 h. p.

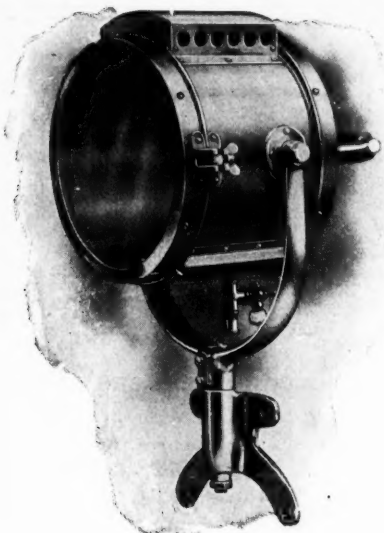
Parts of the other size are suitable for cars weighing up to 2800 lbs. and of 50 h. p.

Write for

Circular No. 12

THE GARFORD COMPANY, Elyria, Ohio

Sales Manager: **HAYDEN EAMES, Cleveland, Ohio**



SEARCHLIGHT SWINDLERS

The success of the Rushmore Lens Mirror Searchlight has been so complete that as a matter of course the lantern makers have been compelled to either try to imitate it or go out of business.

A number of them have conspired to keep us out of the automobile shows, have claimed that we do not make the celebrated Rushmore Lens Mirror and that they get their cheap flat lenses from the same place, and have resorted to every contemptible trick to deceive people into buying their trash.

Certain so-called jobbers have tried to push the sale of the imitation lights by issuing lists of what are insinuated to be our prices in comparison with their alleged cheap prices. The statement that we ask the prices quoted is a deliberate and malicious lie. The prices they offer are but

a few cents lower than ours, while the fake lights they offer are by comparison not worth their weight as junk.

Some of the fake jobbers refuse to furnish the Rushmore light when requested to do so on the plea that we cannot make delivery. That statement is likewise a deliberate lie. They offer to refund your money if not as represented, but you had better hold on to your cash.

We do not ask any money in advance, but will send the Searchlight on ten days' free trial to anyone worthy of credit. The fake jobber can make but 25 per cent to 30 per cent on the Rushmore, while he clears 100 per cent to 200 per cent on the fake lights which he obtains on consignment. Do you wonder that he is willing to cheat you?

Our prices are the lowest for the quality and we ship from stock.

RUSHMORE DYNAMO WORKS, = Plainfield, N. J.

When Writing to Advertisers, Please Mention Motor Age.

Glad to Get Back To GOODRICH TIRES

Mr. H. C. Baxter of Walpole, N. H., in a letter of September 12, 1905, writes as follows:

"I am glad to get back to the use of your tires, after having satisfied my desire to test a foreign make, which I have found did not give me as good service on our country roads as yours, which I have used for years, have given me. I shall use your make in the future. At present I have a 24 h. p. Peerless, which I am using to make business trips between our canneries in New Hampshire and Vermont."

Yours truly,

H. C. BAXTER.

THE BAILEY "WON'T SLIP" TIRE.

Regular Goodrich construction, but provided with the Bailey "WON'T SLIP" Tread. Prevents slipping, slewing or skidding.



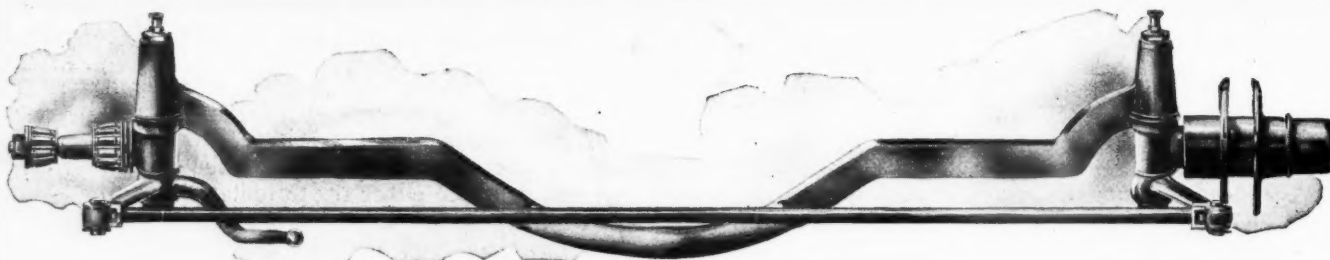
Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

The B. F. Goodrich Company Akron, Ohio

NEW YORK, 66-68 Reade St., and 1625 Broadway.
BUFFALO, 731 Main St.
SAN FRANCISCO, 392 Mission St.

CHICAGO, 141 Lake St.
BOSTON, 161 Columbus Ave.
DETROIT, 80 E. Congress St.
LONDON, E. C., 7 Snow Hill.

CLEVELAND, 420 Superior St.
PHILADELPHIA, 909 Arch St.
DENVER, 1444 Curtis St.



Timken-Lemoine Front Axle (Roller Bearing)

TIMKEN Axles and Roller Bearings are simply perfect in principle, design, construction and in operation. They *do what others almost do.*

That's why they meet the requirements of exacting engineers of the leading automobile manufacturers. They're made a little better than seems necessary—result, they do what others *almost do.*

We have an efficient hustling corps in our selling organization, on the theory that our business is to assist you to increase your business.

Put the burden of the proof on us, use our axles and bearings and your experience will be that of thousands of others—not a dissatisfied customer.

Write us about it. Direct drive axles, divided and solid rear axles, knuckles, special bearings and cups, wheels and channel rims.

Timken Roller Bearing Axle Co.

General Office and Works, Canton, Ohio

Classification Distinctive... WHY?

The Lightest, the Strongest, Most Durable, Most Efficient, Best Finished. Attractive in Rich Finish and Design, Simply Manipulated.



Absolutely Safe, Perfectly Clean, Best to Ride, Most Economical to Keep. Always Satisfactory. A Carriage Any Lady Can Drive.

THE BAKER ELECTRIC

SEND FOR OUR BK CATALOG

THE BAKER MOTOR VEHICLE CO. Cleveland, Ohio

Chicago Agents: PARDEE-ULLMANN CO., 1218-20 Michigan Avenue, Chicago

DON'T EXPERIMENT

Just Sell

THE FORD

MR. AGENT:—Over 2,000 Automobile buyers decided during the past season not to experiment. They all bought "Fords." It is even more important for the retailer to *sell* a car of known merit than it is for the purchaser to *buy* one. The buyer only loses his *money*, but the Agent who sells a car not up to standard loses both *prestige* and *reputation*.

The success of the Ford Motor Co. is built on the success of the Ford Cars, and you know how great our success has been. Remember that people like to do business with successful firms, and a *car with a reputation is easier to sell than an unknown*.

You know the general rush to the Ford exhibit at the shows and how they all ask "*What has Ford this year?*," plainly indicating that automobile men look to Henry Ford for new ideas and originality of design.

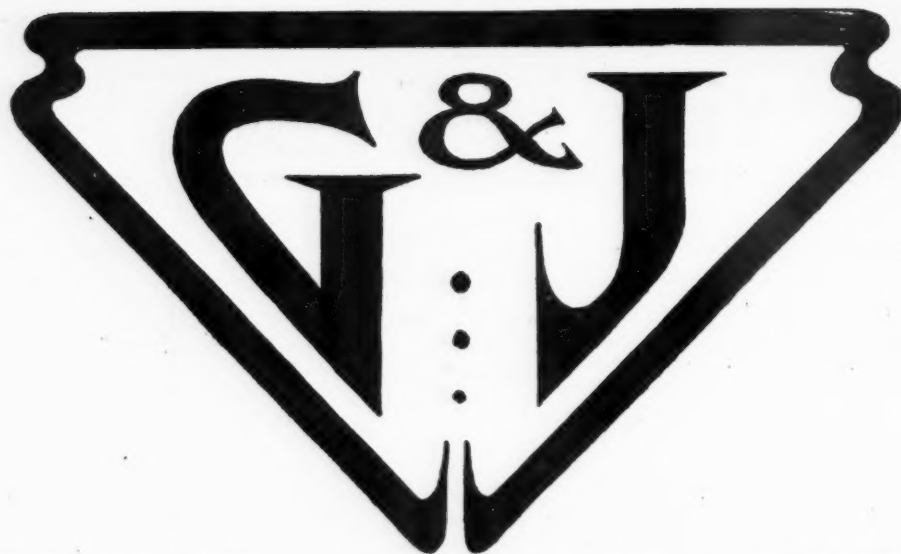
We have a surprise or two up our sleeve this year—particulars about October 15th—nothing before—except that there is certainly good business ahead for the Ford agent in 1906, and it might be well to write us and see if we can give you the proposition and the territory you require.

FORD MOTOR CO.,

Member American Motor Car Manufacturers' Association, Chicago

Detroit, Mich.

Canadian Trade supplied by The Ford Motor Co., of Canada, Ltd., Walkerville, Ont.



MOTOR CAR TIRES

ARE
RESILIENT, SPEEDY
ECONOMICAL, SAFE
EASY TO HANDLE

Get our new Tire Manual

G & J TIRE CO.

INDIANAPOLIS

Boston

Buffalo

Cleveland

Detroit

Chicago

Denver

San Francisco

There was a time when a regular and reliable ignition was a problem. This problem is solved today by the **HERZ TIMER**. We have made and sold over 70,000 of these instruments last year, to the most prominent manufacturers in this country, as well as in Europe, and are making now four distinctly new models for four of the leading manufacturers in America. The reason for this success: It's Tool Steel vs. Tool Steel, best Sheffield grade obtainable; **Sticking Vibrators** absolutely impossible; running packed with grease; built like a watch, tool maker's work throughout. We make 18 models and fit **any** make of motor. State make of your motor when ordering.



HERZ & CO.
187 Elm St. NEW YORK

Write for the Vademecum of Ignition.

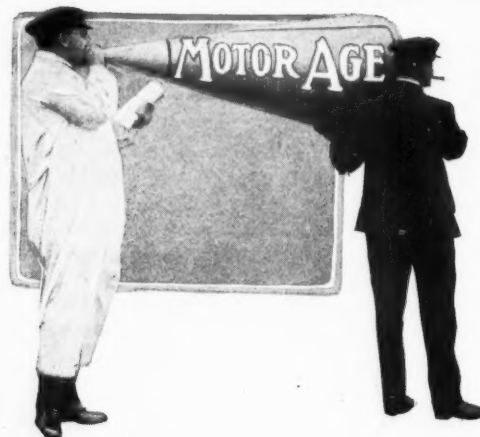


"Everything for the Autoist but the Auto"

**THE NEW BOOK IS IN PRESS
PLEASE SEND FOR IT**

We are about to issue a new illustrated catalogue de luxe of 200 pages devoted to the new imported and domestic models of automobile apparel for men and women for fall and winter service. Presented are garments of fur, leather, cloth and rubber, together with a comprehensive series of requisites. To you, we would be pleased to mail a copy without charge directly it leaves the press.

Saks & Company Broadway, 33d to 34th Streets NEW YORK



The Official Announcer

of news pertaining to touring, racing, the commercial era and the industry in general. It will cost you \$2 for 52 issues. It's worth it.

MOTOR AGE, 309 Michigan Avenue, Chicago

The Automobile WASHSTAND-TURNTABLE

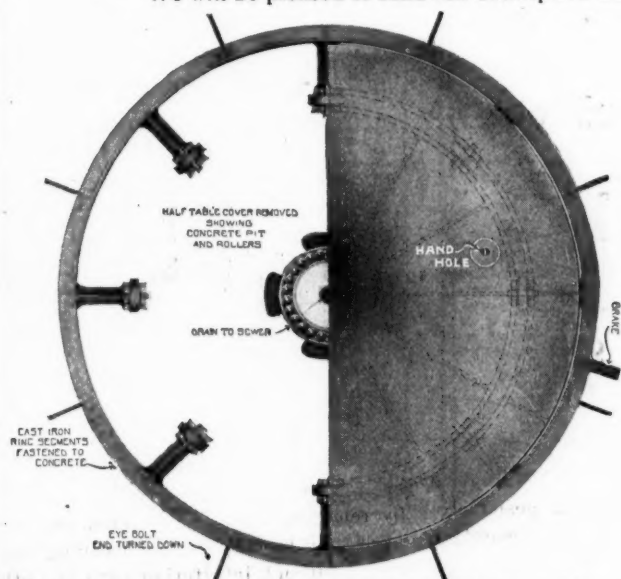
It greatly increases the capacity of a garage by saving the space otherwise required for maneuvering cars. It also permits a car to always face the door, thereby avoiding the inconvenience and danger of accident incident to backing it, when the approach is difficult.

The table is of cast-iron supported by a ball-bearing pedestal in center and rollers near its outer edge. It rests in a concrete pit about 12 inches deep, the edges of which are protected by an iron ring or curb as shown. It moves easily, is practically indestructible and is absolutely fire-proof.

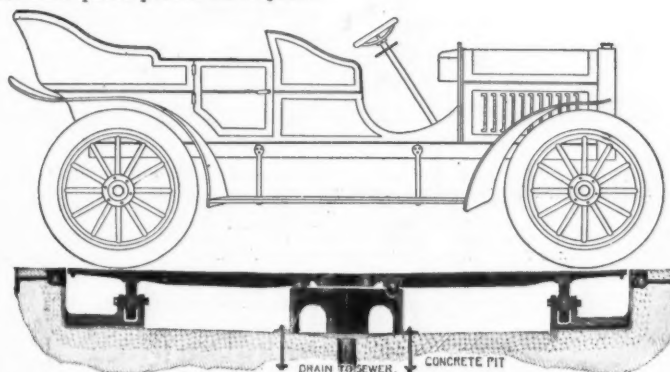
It greatly facilitates the washing of cars, all water from surface of table and garage floor passing to sewer through a drain pipe in center of pit.

We make Washstand-Turntables and also plain turntables (without the washstand feature) for wheel bases up to 126 inches.

We will be pleased to send full descriptive matter and quote prices on request.



Sectional views of WASHSTAND-TURNTABLE Patent applied for.



**LINK-BELT
Machinery Co.**
CHICAGO

FIREPROOF



PORTABLE
AUTO
HOUSES

MADE ENTIRELY OF STEEL

Protects your car and your property.

Affords a SAFE and HANDY place in which to keep your automobile, SUMMER and WINTER, when not in use.

DOES NOT CONFLICT WITH FIRE ORDINANCES.

DOES NOT BECOME A PART OF THE REAL ESTATE.

Easily erected by unskilled labor and can be moved as often as desired.

By keeping your car at home instead of at a garage (more or less distant from your residence), you are assured that no unauthorized person uses your car, unknown to you.

We make all styles and sizes. Send for catalogue of prices, illustrations and complete particulars. Address

The Lloyd Iron Roofing & Paint Co
107 West Monroe St. :: Chicago, Ill.

Why Premier Cars

Appeal to All Classes

To the Professional Man—because of its simplicity.

To the Business Man—because of its readiness to go at all times.

To the Repair Man—because of its perfect accessibility to working parts.

To All Men—because of its low cost of fuel and maintenance.

We have much data from drivers on this latter point; for instance, one writes us: "The total cost of my running this season—5,000 recorded miles—is only a trifle over one cent per mile for the car, or 1-5 to 1-4 cents per mile per passenger; total for repairs, fuel, etc., excepting tires."

These are points to remember when purchasing a car.

The Air Cooled Season never ends.

Side Entrance \$1,500. Runabout \$1,250

Our new [1906] Doctor's Special \$1,425

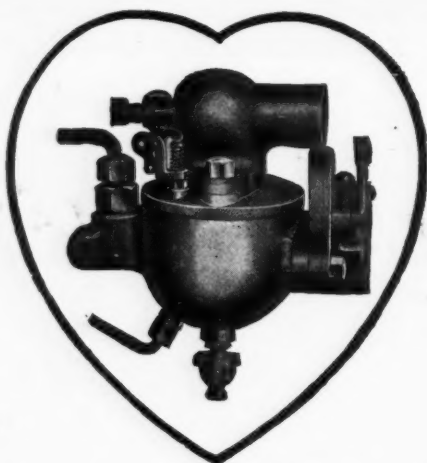
Light Truck \$1,400

PREMIER MOTOR MFG. CO.

1001 George St., Indianapolis, Ind.

Members American Motor Car Manufacturers' Association, Chicago

THE
HEART



OF THE
AUTOMOBILE

The Schebler

Carburetor

SIXTY-FIVE automobile and marine engine builders in the United States and Canada have adopted the Schebler. No other carburetor made in the world can show this record.

SCHLEBLER SPECIAL for Cadillacs, - price, \$20.00

OLDSMOBILE CARBURETOR " 18.00

FORD, Two-cylinder. " 18.00

Standard sizes will fit all other automobiles. Agencies in all the principal cities of the world.

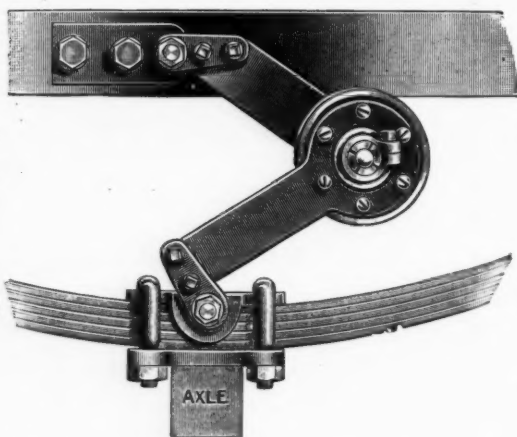
F. H. WHEELER

Manufacturer and Sales Agent
INDIANAPOLIS, IND.

E. J. Edmond, 44th St. & 6th Ave., N. Y.
E. B. Belcher, 26 Green St., Malden, Mass.
Jos. Brassard, Central Falls, Rhode Island.
Ellsworth Foundry & Machine Shop, Ellsworth, Me.
National Elec. Supply Co., Washington, D. C.
Smith Elec. Engineering Co., Watertown, N. Y.
The Wallace Bros. Co., Norfolk, Va.
North Philadelphia Auto Station, 3425 North Broad St., Philadelphia, Pa.
P. J. Dasey, 431 Wabash Ave., Chicago, Ill.
Factory Representative.
Wilson & Co., Ottawa, Ontario, Canada.

Auto Supply Agency, 3939 Olive St., St. Louis, Mo.
R. P. Bayley & Co., New Orleans, La.
Consolidated Supply Co., Denver, Colo.
Los Angeles Automobile Co., Los Angeles, Cal.
Hughson & Merton, 105 Front St., San Francisco, Cal.
McCulloch & Boswell, Winnipeg, Man.
Canada Cycle & Motor Co., Toronto Junction, Can.
Turnbull & Jones, Dunedin, New Zealand.
Geo. Neill & Co., 38 Fenchurch St., London, England.

**Cars Under
1500 lbs.
\$40
(4 suspensions)**



**Cars Over
1500 lbs.
\$60
(4 suspensions)**

"The first four cars in the International race for the Gordon-Bennett cup at Auvergne were ALL equipped with the Hartford Suspension, and only 24 minutes separated them at the finish. The fifth car was one hour behind the leader and was NOT equipped with the Hartford Suspension. This victory over the picked cars of every nation, and run over the most difficult course in the world, is only one more proof of the practical qualities of this wonderful invention."

HARTFORD SUSPENSION CO.

Edward V. Hartford, President 69 Vestry St., New York City

**BRISCOE
MFG CO.**

**OLDEST AND LARGEST
MAKERS**

OF

**AUTOMOBILE
RADIATORS**

DURING the past season we sold 12,945 radiators to 54 bona fide motor car manufacturers among whom are nearly all of those who have produced high-grade and successful cars.

Over 30,000 of our radiators are now cooling automobile engines.

Our standard honey comb radiators are of true cellular construction, allowing cross circulation and accounting for their high-cooling efficiency per pound of weight of cooler.

The hit of the year 1905 in radiator design has been our flat tube construction with gang fins. We make special designs for every class of car from the light runabout to the heaviest truck or omnibus.

The finish on Briscoe fenders is unexcelled. 1906 styles on metal dashes, hoods and runabout boxes are prepared and we are daily booking contracts for next season's business.

COOLERS

FENDERS



HOODS

EASTERN FACTORY, NEWARK, N. J.

TANKS

By dealing with us you get the benefit of our long experience and the protection of the many patents we own, covering our methods of construction.

The Pierce Great Arrow car which won the Glidden trophy was equipped with a Briscoe radiator. Of the twelve American water-cooled gasoline cars which received first certificates at the end of the tour six of the radiators were made in our shops, four were made by the car builders, and only two were made by other radiator manufacturers. These facts are typical of our prestige.

Our two large plants are ready to take care of our rapidly increasing business. We cannot only promise but make deliveries.

Write to our nearest office for estimates and get in line for 1906.

BRISCOE MFG CO.

DETROIT, MICH. and NEWARK, N. J.

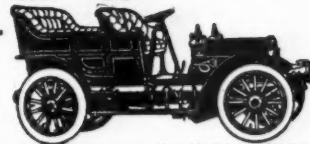
Locomobile

The Locomobile Company of America, Bridgeport, Conn.

Member Association Licensed Automobile Manufacturers.

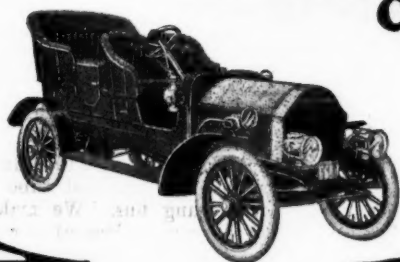
NEW YORK, Broadway and 76th St.
PHILADELPHIA, 249 N. Broad St.

BOSTON, 15 Berkeley St.
CHICAGO, 1354 Michigan Ave.



GAS-AU-LEC

"THE SIMPLE
CAR"



Elegant in Finish
Luxurious in Appointments
Built by Skilled Workmen from the Best
Materials Obtainable

**THE SIMPLEST GASOLENE
CAR IN THE WORLD**

—both as to construction and control, and the eas-
iest to operate and maintain.

"Marks a New Era in Automobile Construction"

40-45 Horse Power, \$5,000

CORWIN MANUFACTURING COMPANY

PEABODY, MASS., U. S. A.

DANGER AHEAD!

**BRIGHT AND STEADY
ALWAYS READY**

Is the acetylene light that gets its supply of gas from the
PREST-O-LITE GAS TANK

Neither heat nor cold, rain or shine affects the steady
supply of pure, cool gas. Enough to run two search-
lights fifty hours.

Jan. 4, 1905.

Concentrated Acetylene Company,
Indianapolis, Ind.

Gentlemen:

It affords me pleasure to report the success I have enjoyed
in the use of your Prest-O-Lite tank. This tank has been on
my personal car for three months and has been called into
nightly service, yet it has not been necessary thus far to
recharge it. Its cleanliness and ever-readiness make it a
valued possession, and I am confident that I shall not soon
again want to bother with gas generators when I can secure
your tank with the gas ready for instant use. With best
wishes,

Sincerely yours,

(Signed) ALEXANDER WINTON.

*To be had of all dealers. Empty tank exchanged for full one by
any dealer.

PREST-O-LITE COMPANY

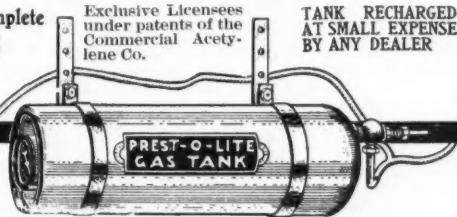
INDIANAPOLIS

AGENTS IN ALL CITIES

Price Complete
\$35

Exclusive Licensees
under patents of the
Commercial Acety-
lene Co.

TANK RECHARGED
AT SMALL EXPENSE
BY ANY DEALER



Columbia

**Electric
Town Carriages**
NEW MODELS NOW READY

The cut shows the new Columbia Electric Brougham,
Mark LXVIII, with Lightened Construction, Pneu-
matic Tires, 5-Speed Control, Special Exide Battery and other improvements.

With same Chassis we supply Landaulet, Hansom and Victoria Bodies.

Send for Bulletin No. 75

ELECTRIC VEHICLE COMPANY

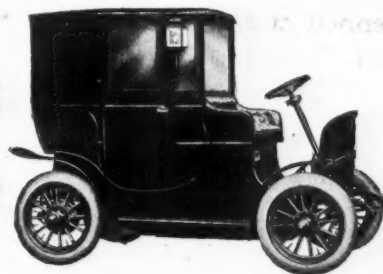
Members Association
Licensed Automobile
Manufacturers

Hartford, Conn.

New York Branch: 134, 136, 138 West 39th St.
Chicago Branch: 1413 Michigan Ave.

Washington: Washington E. V. Transportation Co., 15th St. and Ohio Ave.
Philadelphia: Pennsylvania Electric Vehicle Co., 250 North Broad St.

Boston: Columbia Motor Vehicle Co., 74, 76, 78 Stanhope St.





THE AUTO-METER

on a car tells the speed of travel and the distance traveled. It is absolutely accurate.

"Built Like a Chronometer."

When you are whirling along, a glance at the Auto-Meter before you, tells you **exactly** how fast you are going if your pace be as slow as a fraction of a mile or as fast as 60 miles an hour.
When a trip is finished, the Auto-Meter tells **exactly** how many miles you have gone on that trip.
When the season is over the Auto-Meter tells **exactly** how many miles you have covered during the season.
All this is worth while. Is it not?
Get acquainted with the Auto-Meter. It will lead to lasting friendship.
Write for catalogue and pamphlet, "Indisputable Evidence." The latter gives the interesting experiences of many prominent automobile owners.

WARNER INSTRUMENT CO., 55 Roosevelt Ave., Beloit, Wis.

Warner Instrument Co., 143 Federal St., Boston, Mass.

Warner Instrument Co., 804 Steinway Hall, Chicago, Ill.

Northern California, G. P. Moore & Co., San Francisco, Cal.

Warner Instrument Co., 1691 Broadway, New York City, N. Y.

Southern California, Heineman & Pearson, Los Angeles, Cal.

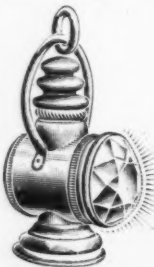
Latest European Novelties

RACING CAR
No. 13878

We are now importing a complete line of Mechanical Automobiles, including side entrance and rear entrance Touring Cars, Runabouts, Racing Cars, etc., which are mechanically operated with clock work and spring. Catalogue mailed on request.



AUTOMOBILE JEWELRY



No. 5361. Full Size.

We are now handling a line of Automobile Jewelry, consisting of watch charms, watch fobs, ladies' hat pins; in sterling silver and rolled gold plate, designed and copied from automobiles and automobile parts, such as lamps, horns, wheels, etc.

Catalog mailed on request.

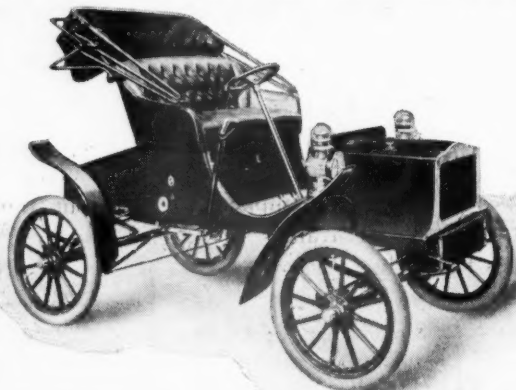
CHARLES E. MILLER

Manufacturer, Jobber,
Exporter and Importer

Home Office, 97-99-101 Reade St., New York City

BRANCHES
Broadway and 36th St., New York 318-320 N. Broad St., Philadelphia
202-204 Columbus Av., Boston, Mass. 406 Erie St., Cleveland, Ohio

A TIMELY WORD TO DEALERS



THE GALE \$500

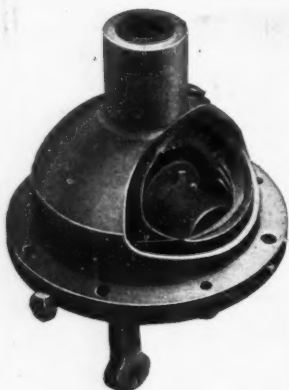
Model A

Will be a genuine sensation in 1906

Every Up-and-Doing Dealer knows the value of handling A GOOD CAR at a low price. THE GALE stands alone in its class.

By all means get our proposition to dealers for 1906 . . . It will interest you SURE. Address

WESTERN TOOL WORKS
Galesburg, Ill.



BROWN-LIPE GEARS

**IRREVERSIBLE STEERING
BEVEL AND CHAIN DRIVE DIFFERENTIAL
MANY SIZES AND MODELS
SLIDING GEAR TRANSMISSION**

PETERSON & DRAPER, 166 Lake St., Chicago, Ill.

THOS. J. WETZEL, 11 Warren St., New York.

CHAS. E. MILLER, 97 Reade St., New York.

318-320 No. Broad St., Philadelphia.

202-4 Columbus Ave., Boston.

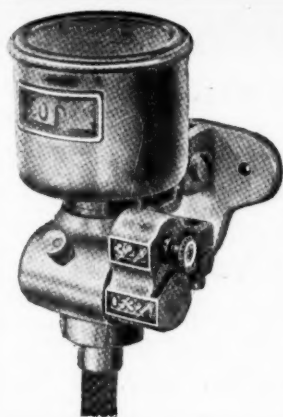
406 Erie St., Cleveland, O.

Post & LESTER Co., Hartford, Conn., Eastern Sales Agts.

Direct Factory Salesmen.

Sales Agent Carrying Stock.

BROWN-LIPE GEAR CO.
200 South Geddes Street SYRACUSE, N. Y.



THE AUTO-METER "BUILT LIKE A CHRONOMETER"

TELLS THE SPEED OF TRAVEL TELLS THE DISTANCE TRAVELED

Tells both with absolute accuracy

The **Speed Dial**, six inches wide and easily read, records the speed of a car from a fraction of a mile to sixty miles an hour and does it unerringly.

The **Trip Dial** records the distance traveled on a trip or for a day.

The **Season Dial** records the total distance covered in a season.

There is satisfaction in knowing how fast your car is traveling, satisfaction in knowing how far it has traveled.

You enjoy this double satisfaction with an Auto-Meter on your car. Some one of your friends surely has one. Ask him about it.

In the meanwhile let us send you a catalogue and interesting pamphlet, "Indisputable Evidence."

WARNER INSTRUMENT CO.

55 Roosevelt Ave., Beloit, Wis.

Warner Instrument Co., 143 Federal St., Boston, Mass. Warner Instrument Co., 1601 Broadway, New York City, N. Y.
Warner Instrument Co., 804 Steinway Hall, Chicago, Ill.
Northern California, G. P. Moore & Co., San Francisco, Cal. Southern California, Heineman & Pearson, Los Angeles, Cal.

Pressed Steel Frames

AND STANDARD PARTS

Automobile Manufacturers using our pressed steel frames on their machines are always certain that they have the best of frames procurable in point of reliability. We have recently increased our capacity and are equipped to turn out our standard frames, or frames of special design, in quantities for early delivery. We have presses also for making heaving stampings and pressings of all descriptions and are prepared to do any work in this line. We also make a complete line of

Rear Axles, Front Axles, Clutches, Change-Gears, Propeller Shafts, Steering Columns, Hubs and Other Automobile Parts

A. O. SMITH COMPANY

MILWAUKEE, WISCONSIN

Hayden Eames, Sales Manager, American Trust Bldg. Cleveland, O.

BRENNAN MOTORS SATISFY

NOTHING CAN DO MORE

We make a special motor and transmission gear for

OLDSMOBILES

NORTHERN

Runabouts

OLDS

TOUR-

ING

CARS

CADILLAC

FORD

THOMAS

Models 17 and 18

GENERAL

YALE

AUTOCAR

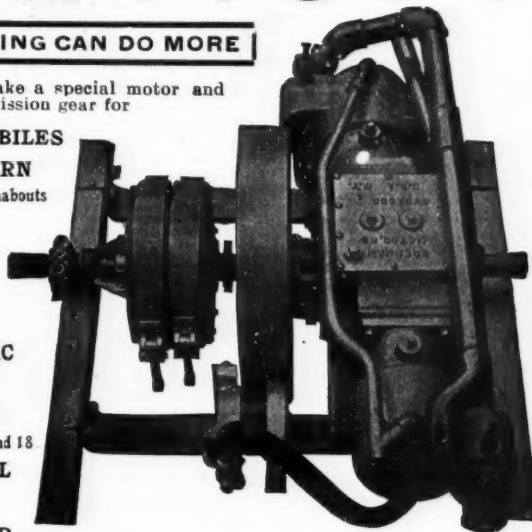
WHITE STEAM CAR GLIDE RAMBLER CLEVELAND

POPE-HARTFORD SANDUSKY RUNABOUT

ST. LOUIS RUNABOUT MARR CAR GROUT STEAM CAR

and all standard makes of cars

BRENNAN MFG. CO. SYRACUSE N. Y.



HAVE YOU SEEN THE NEW

KOKOMO AUTOMOBILE TIRE?

MECHANICALLY - ATTACHED

It is just what you have been looking for.

Quickly attached and detached.
Creeping and Rim Cutting entirely avoided.
Made of the very best material and workmanship throughout.

Write us for full particulars.

KOKOMO RUBBER CO.,
KOKOMO, IND.



When Writing to Advertisers, Please Mention Motor Age.



Mr. H. P. Hubbell, in his Adams-Farwell Car, in Forest Park, St. Louis

ADAMS-FARWELL

MR. HUBBELL WRITES AS FOLLOWS:

"With reference to the engine will say in the three and a half months that I have run it I have not had an accident, and have never been forced to send for assistance.

"My wife is able to go to our garage and take our car out at any time she cares to, and she experiences no difficulty in operating it, even in the streets where the electric cars and carriages are very numerous."

SIX MODELS

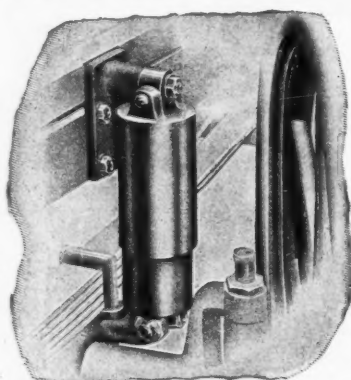
THE "REVOLVING MOTOR" CAR

SEND FOR CATALOG

THE ADAMS COMPANY, Dubuque, Iowa

CHICAGO BRANCH: 1536 MICHIGAN AVE.

GOODBYE



PATENT ALLOWED.
See illustrated description in Motor Age
of August 3.

**JOLTS
JARS
BUMPS
AND
SHOCKS**
of every nature

NO Bumping Axles, Broken
Springs, Disarranged
Motor and Machinery, Tele-
scoped Spines.

SAVES Tires, Springs,
Motor and
Transmission, Repairs, Oil,
Gasoline, Perspiration.

THE KILGORE

Automobile Air Cushion

SPRING DEVICE

Permits the use of Flexible Springs on your car and a good steady speed over roads as they come. An investment paying 50% to 500% in cash and large dividends in comfort.

KILGORE AUTOMOBILE AIR CUSHION COMPANY

GENERAL SALES AGENTS UNITED STATES AND CANADA

S. F. HEATH, Manager

46 Columbus Avenue, Boston, Mass.

Agencies: { NEW YORK, E. J. Edmond, 52 W. 43d Street.
BOSTON, W. R. Butterfield, 41 Mt. Vernon St., Somerville.
CHICAGO, Wm. R. Johnston, 1336 Michigan Blvd.
MINNEAPOLIS, Barclay Auto Car.

ELECTRIC

Broughams • • • Landaulets
Victorias Station Wagons
Coaches Ambulances, etc.

Express Wagons, Delivery Wagons,
Baggage Vans, etc.

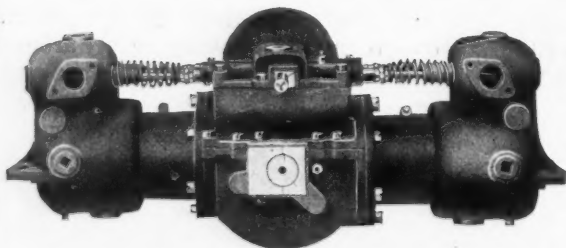
Brewers' Trucks, Dumping Trucks,
Machinery Trucks, Hoisting
Trucks, etc.

Over One Hundred Standard Designs,
One to Six ton capacity

VEHICLE EQUIPMENT CO.

Sales Department, General Office and Works
LONG ISLAND CITY, NEW YORK

Largest Builders of Electric Vehicles in the World



"BEAVER MOTORS"

Maximum Power—Minimum Weight

All bearings and parts subject to strain of ample dimensions. Get particulars and prices for your 1906 cars

12-14 H. P. OPPOSED
16-18 " "
22-24 " VERTICAL

**BEAVER MFG. CO., MILWAUKEE
WISCONSIN**

The Expected Revolution Has Come

If you can think of a good reason for buying twice the machinery you need in a touring car and paying twice the expense for its upkeep, then you have found the only good reason why you should not buy an

Elmore

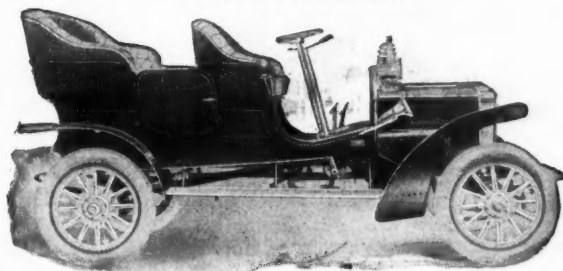
You certainly do not want four cylinders if two cylinders will do the same work and produce the same power—and that is precisely the extraordinary efficiency furnished by the two cycle two cylinder Elmore engine. Understand—the two cycle two cylinder Elmore engine produces **two impulses every time the flywheel turns**. As you know, the two cylinder four cycle furnishes only **one impulse every fourth time the flywheel turns**. In other words, the revolution which you have been expecting in automobile construction has come—and the perfect engine is here.

You'll realize quick as a flash when you look into the matter that the two cycle engine is a giant stride in advance—and that to cling to the four cycle in the face of the two cycle triumph is to take a step backward. Lose no time in finding out all about this remarkable mechanical achievement. Send for the technical description, stories of the conclusive tests, opinions of agents and users—the history of a tremendous success which has reached its climax this season after five years of steady improvement.

THE ELMORE MFG. CO., 804 Amanda Street
CLYDE, OHIO

Northern

"Noiseless and Dustless"



7 h. p. Runabout . . . \$ 650
18 h. p. Side Entrance Touring Car . . . 1,700
Limousine . . . 2,500

Investigate our claim for **QUIETNESS**—you will find that the Silent Northern surpasses in this respect. It is **QUIETER** than the finest electric.

Investigate our claim for **EASY RIDING**—four full elliptic springs and scientific distribution of weight which includes placing of all mechanism under the front hood, insure a freedom from vibration such as you can have no conception of until you ride in a silent Northern.

There are other features embracing our **THREE POINT MOTOR** support and encased mechanism which reduce the cost of maintenance to the minimum. Send for our complete Catalogue 14 which explains in detail.

NORTHERN MFG. CO.
DETROIT, U. S. A.

Members Association Licensed Automobile Manufacturers.

Peter Fogarty, 142 W. 38th St., New York City Agent.

"20TH CENTURY SOAP"

One
Pound
Can
10c

Invaluable for ALL
Cleaning Purposes
About a Garage

25
Pound
Pail
\$1.15

3½
Pound
Pail
25c

Nothing can compare with it for
cleaning and polishing the highly
finished surfaces of an automobile

CONTAINS NO LYE. Made of Strictly
Pure Vegetable Oils.

ABSOLUTELY A PURE SOAP

The Pure Oils of which it is made
are beneficial to the skin, and keep
the hands in good condition.

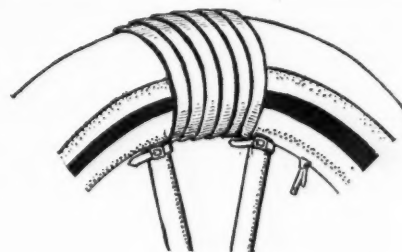
60
Pound
Tub
\$2.50

Or
in
Barrels

TRY IT TO-DAY

HOFFHEIMER SOAP CO.
CHICAGO

The Automobile Tire Emergency Strap



DOES for the Automobile tire what tape does for the bicycle tire. Made of special chrome leather absolutely unaffected by water. Is applied by buckling one end to a spoke, winding tightly around the partly inflated tire and buckling the other end. Will enable a person to run a hundred miles with a bursted, rim-worn or badly cut tire-shoe. Makes it safe to take long trips without an extra casing.

One size fits all tires

PRICE \$1.50 EACH

For sale by dealers, or sent post paid on receipt of price

Leather Tire Goods Co. Makers
NEWTON UPPER FALLS, MASS.

National Motor Cars

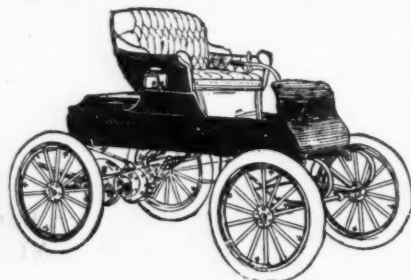
"WATCH FOR THE ROUND RADIATOR"



National
Model C.
24-30 H. P.
4 cyl., 4 $\frac{1}{2}$ x5

A touring car decidedly in advance of the times.
A type of car that will be extensively copied in the near future.
Ample power and speed, perfect control.
All working parts simply arranged and remarkably accessible.

National
Electric
Runabout



One of several handy little electric cars which are unsurpassed for convenience and comfort. Write for our catalogues.

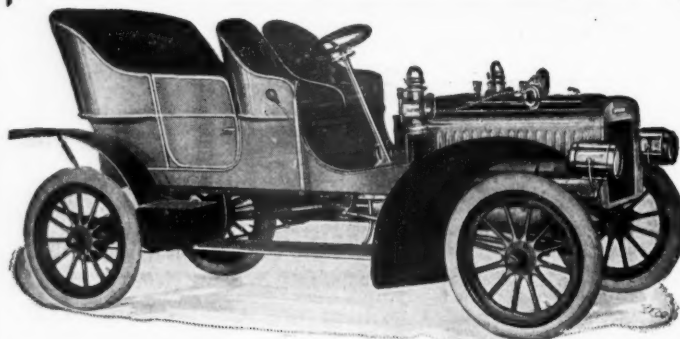
NATIONAL MOTOR VEHICLE CO.

Members American Motor Car Manufacturers' Association, Chicago.

1006 E. Twenty-second Street

INDIANAPOLIS, IND.

MOLINE



18-20 HORSE POWER

Model "B"—\$1,600

Four cylinder vertical motor that develops more than the rated H. P. Pulls through heavy roads and up hills in a way that surprises the owners of higher-priced cars.

Has all the good features of most \$2,000 machines and costs \$1,600.

For the first time this season we can make immediate deliveries

We have only a few of them left and they will go quickly. Perhaps our proposition might interest you.

Model "D"—Our stock of these substantial 12 H. P. Touring Runabouts is decidedly limited. The price we are making is closing them out fast. If you want one, speak quick.

Moline Automobile Company

EAST MOLINE, ILLINOIS

WANTED

Manufacturers having just bought a large commercial motor vehicle works are extending operations and want

**CAPABLE
REPRESENTATIVES
FOR EASTERN
TERRITORY**

Also want suitable

PARTY TO GO ABROAD

Must become financially identified with the business.

Address

"COMMERCIAL"
CARE OF MOTOR AGE, CHICAGO

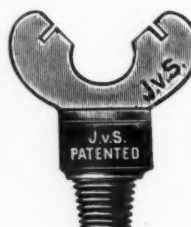
Automobile Lamp Manufacturers

WHO USE

Licensed Burners Only



This little Acetylene Lamp Burner has been the source of a great deal of annoyance. This list is published for the benefit of those who desire to avoid it.



Atwood Manufacturing Co., Amesbury, Mass.
Badger Brass Mfg. Co. (Solar), Kenosha, Wis.

Commercial Acetylene Co., New York City N. Y.

R. E. Dietz Co., New York City, N. Y.

A. H. Funke, New York City, N. Y.

Gray & Davis, Amesbury, Mass.

Manhattan Lamp Works, New York City N. Y.

Motor Car Equipment Co., New York City, N. Y.

New York Coach & Auto Lamp Co., New York City, N. Y.

Rose Mfg. Co., Philadelphia, Pa.

Scoville & Peck Co., New Haven, Conn.

Also all Auto Supply Houses.

The Von Schwarz Burners are, with the exception of the Crescents, the only licensed burners.

Von Schwarz Burners

On Label: Von Schwarz and patent number.

On Seatite: J. v. S.

On Pillar: J. v. S.

&
M. K. & Co.
Pat. Aug. 31, '97.

THE COIL THAT DOES THE TRICK

In the Climb to the Clouds

Chas. Soules, driving a Pope-Toledo fully equipped Touring Car, made the ascent in 29:37 2-5. This is considered a most wonderful performance. Besides

SPLITDORF COILS

were winners in nearly every event. Ask the Glidden Tourists how they like the Splitdorf Coil. Seventy-five per cent of the cars on the tour were equipped with them.

HERE IS DR. PARKER'S LETTER:

MR. C. F. SPLITDORF. June 24th, 1905.
Dear Sir: I feel that in the recent 200 mile contest my success, in a large degree, was due to your coil. It seems to me that your latest is superior to anything in use to date. I tell my automobile friends to give me a SPLITDORF for reliability every time. Very truly,
C. B. PARKER.
167 Remsen St., Brooklyn, N. Y.

Winner of Recent Economy Test of Long Island Automobile Club

C. F. SPLITDORF 17-27 Vandewater St.
NEW YORK CITY

The Largest and Most Successful Coil Maker in the World.

THE HAYNES 1906 four cylinder REGULAR STOCK TOURING CAR qualified for the Vanderbilt Cup Race in competition with a long list of the most powerful specially constructed racing cars ever built in America.

Compare the cylinder capacity of the engine in the HAYNES car (5 in. bore x 6 in. stroke) with that of all other entrants. Nutt had been around the course in this car only three times prior to the race and was the only contestant who had never before driven in a race. The only stop he made with the HAYNES car was necessitated by an oil can bouncing into the fly wheel and spilling oil on the master clutch, causing it to slip.

Just think what it means for a stock touring car to win honors from specially built monster racing cars. That is what THE HAYNES STOCK CAR did. IF YOU ORDER A HAYNES 1906 TOURING CAR YOU GET AN ABSOLUTE DUPLICATE OF THE CAR DRIVEN IN THIS CONTEST.

We are now booking orders and closing agencies for 1906 HAYNES CARS. Write us to-day.

HAYNES AUTOMOBILE COMPANY
(THE HAYNES-APPERSON CO.)

KOKOMO - - INDIANA
NEW YORK MEMBERS A. L. A. M. CHICAGO

WE ARE JUST FINISHING

OUR LAST
LOT OF....

50 4-Cylinder Yales
28 h. p., 104 inch Wheel Base

You will be Able to Make Reasonably Prompt Deliveries

A SUPERB FINISH AND IRONED
FOR CAPE OR CANOPY TOP

We want to sell these to agents who will be interested in our proposition for the coming season, and KNOW that this model will be a worthy INTRODUCTION.

THE KIRK MANUFACTURING CO.
TOLEDO, OHIO

Member Association Licensed Automobile Manufacturers.

THE Kellogg Multiple Gear Pump...

**JOBBER'S
DEALERS
USERS**

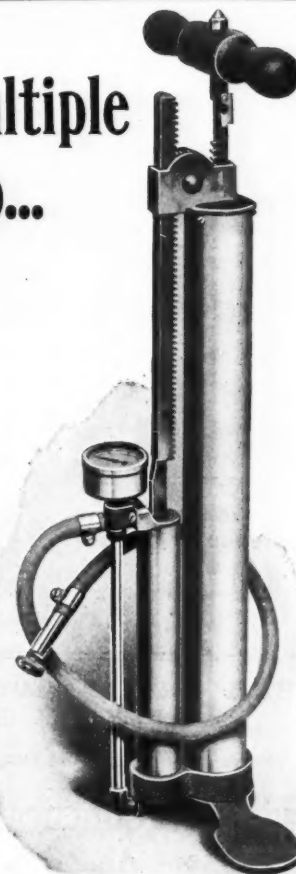
This is the limit of perfection. ... 1906 Catalogue will soon be ready.

... Write...

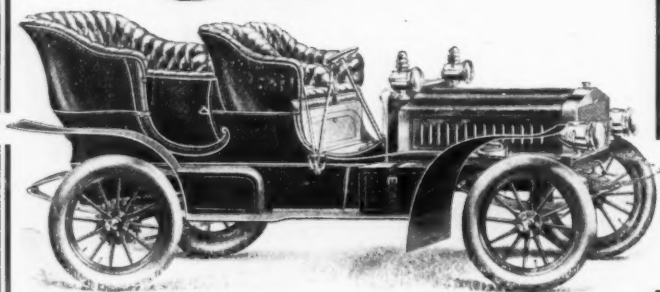
**WRAY PUMP
& REGISTER
CO.**

191-193 Mill St.
Rochester, N. Y.

Or Brandenburg Bros.
& Alliger, 103 Reade
St., New York City. 85
Lake St., Chicago, Ill.

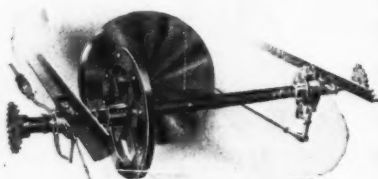


THE LAMBERT



Model 7. 28-52 h. p., \$2,000

A 16 h.p. Runabout



Our Noiseless Transmission

The most powerful machine on the market, a 1906 model.

Write for specifications.

The Buckeye Mfg. Co. ANDERSON, IND.

MEMBERS AMERICAN MOTOR CAR MANUFACTURERS' ASSOCIATION, CHICAGO

Compound MOTOR CARS



Model Four, \$1,400

HALL BROTHERS

The E. H. V. Co.,
Middletown, Conn.

NORWICH, CONN.,

Sept. 5, 1905.

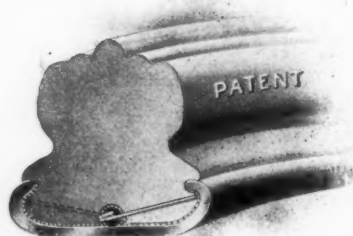
Gentlemen:—The Compound that I purchased of you last Spring is giving excellent satisfaction. I have used it considerably cross country touring and find it both reliable and economical. I can cheerfully recommend the Compound to any one desiring a quiet, smooth running car.

Yours respectfully,

F. B. HALL.

THE E. H. V. CO.,

MIDDLETOWN, CONNECTICUT



1906 SHAPE

WE EQUIP
Pleasure Cars
AS WELL AS
Commercial Cars
WITH

Swinehart
TIRES

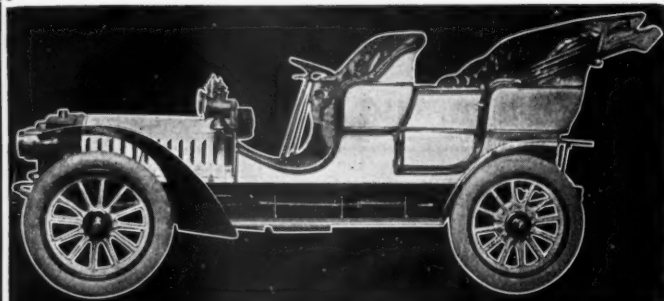
WHICH ARE ABSOLUTELY SATISFACTORY
UNDER ALL CONDITIONS

Write for Experiences of Others as Given in Catalog A

Swinehart Clincher Tire & Rubber Co.
AKRON, OHIO

New York City, 1773 Broadway Chicago, 1208 Michigan Boulevard

AUSTIN A LUXURIOUS CAR



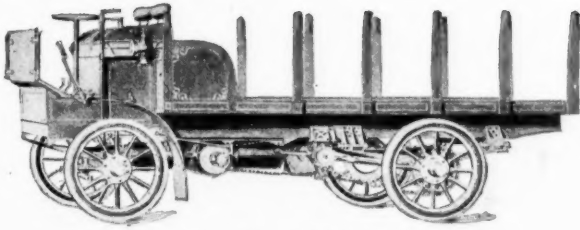
THAT LOOKS THE PART

Four-cylinder, 5 1-2 in. bore, 5 in. stroke,
50 h. p., weight 2,500 lbs., price \$3,500.

Full Extension Top, \$150.00 extra. 108 inch wheel base, 36 inch wheels, 4 1-2 inch tires, 44 1-2 inch rear seat. Bevel gear drive, direct on high speed. Our new sliding gear transmission has four forward speeds. Write for complete description.

AUSTIN AUTOMOBILE CO.
GRAND RAPIDS, :: MICHIGAN

KNOX



NEW MODEL STAKE TRUCK

Developed along the sound lines of construction that have built up for us the largest Gasoline Commercial Car Business in the country.

POWERFUL RELIABLE ECONOMICAL

CARRYING CAPACITY, 6,000 LBS.

Cylinders Air Cooled Speed 12 Per Hour.

Chassis is adapted to bodies of various styles

Every firm using trucks of large capacity should investigate this new model. It is one of the finest products of our many years' experience in building cars for "All the Year Round" service. Write for particulars as to Waterless Knox D-4 Stake Truck.

Agents in All Principal Cities

KNOX AUTOMOBILE CO., Springfield, Mass.

Largest and Oldest Manufacturers of Gasoline Commercial Cars.

MEMBERS A. L. A. M.

Among the Leaders in Eliminatin' Race

OUR regular stock model finishes third in Vanderbilt Cup Race trials. Just think what we are offering you this year. It is like this. You sit behind the wheel of a *Royal Tourist* with one hand on the throttle lever. Move the lever an inch or so and you have an ideal vehicle, under perfect control, for city use or country touring. Move the lever a little more and you have a motor car, fit to compete with the speed machines especially built for the *Vanderbilt Cup Race*. Please bear in mind the fact that the famous Royal that did so well in the Elimination race held Sept. 23 is the same as the one you buy from us in every particular except, of course, you get a luxurious and handsome body, instead of a couple of tin seats.

ROYAL

THE ROYAL MOTOR CAR CO. :: Cleveland, Ohio

AGENTS

C. A. Duer & Co., 58th and Broadway, New York G. J. Dunham, 182 Columbus Ave., Boston
The McDuffee Automobile Co., 1449 Mich. Av., Chicago G. W. Caplin, 424 So. Fifth Street, Minneapolis
Automobile Supply Co. Ltd., 24 Temperance St., Toronto Motor Shop, 317 N. Broad St., Philadelphia
Westminster Automobile Co., 4396 Olive St., St. Louis.

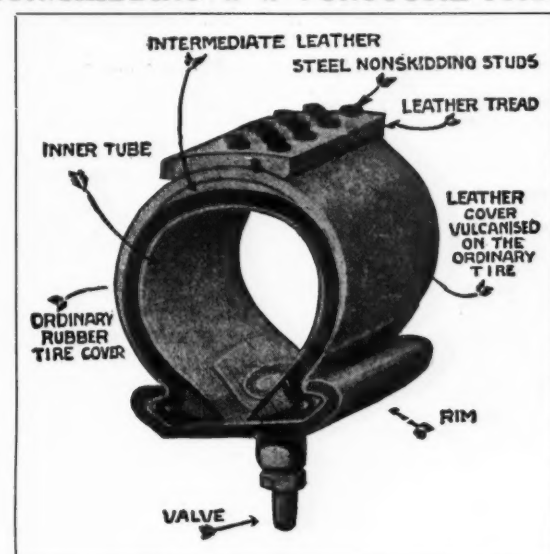
DIETZ

THE DIETZ OIL LAMPS

are fitted with removable Aluminum Reflectors, drawn up out of very heavy gauge aluminum. The Reflectors can be taken out for cleaning without any trouble whatever and replaced just as easily. Those who have personally used Lamps made in the usual way can appreciate how great a convenience this is.

R. E. DIETZ COMPANY, 37 Laight St., New York
ESTABLISHED 1840

SAMSON LEATHER TIRE NON-SKIDDING :: PUNCTURE PROOF



A. E. GALLIEN, Manager

UNITED STATES BRANCHES:

New York: 12 West 33d Street
Boston: 20 Park Square

Chicago: 1461 Michigan Boulevard
Philadelphia: 1120 Chestnut Street

Chain Drive Wins Vanderbilt Cup Trials



"DIAMOND" CHAINS were on the winning car in the eliminating trials for the Vanderbilt cup. The second car to finish was also driven by "DIAMOND" CHAINS.

BOTH COVERED THE COURSE IN ABOUT 22 MINUTES LESS TIME THAN THE THIRD CAR, WHICH WAS GEAR DRIVEN

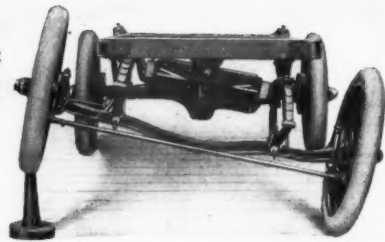
Judicious selection of materials and accuracy of manufacture account for the successful performance of "DIAMOND" CHAINS.

TRADE  MARK.

When your old chain is worn out try a "DIAMOND." It fits any standard sprocket.

DIAMOND CHAIN MFG. COMPANY
INDIANAPOLIS, IND.

Wheel Raised
Over a Foot



Body
Level

Real Comfort on Rough Roads

It isn't enough to say "this car goes anywhere." So does a log-wagon; that doesn't mean that you would want to ride on it.

THE MARMON

"A Mechanical Masterpiece"

Is the only car that is not built on the unyielding principles of a log-wagon. The flexibility of its running gear is such that, over the roughest roads, its mechanism is always in alignment, free from binding and twisting strains. It can be run at good speed over rough roads with a freedom from jar, jolt or vibration—a very luxury of motion—that is unknown in any other car, all due to an exclusive patented Marmon feature.

Double Three-Point Suspension

Cast aluminum body on one frame, power plant on another frame, each frame suspended on three pivotal points. Eliminates the ruinous strain inevitable in the rigid suspension of all other cars. Means greater efficiency and less wear on all parts, tires included. Four cylinders air-cooled. A carefully constructed, high-grade proposition for those who want nothing but the best.

WRITE FOR BOOKLET No. 1.

NORDYKE & MARMON COMPANY, Indianapolis, Ind.
(Established 1851) Members American Motor Car Mfrs. Assn., Chicago

Standard Roller Bearing Company

Steel
Brass
Bronze **BALLS**

Use our "A" Grade Steel Balls for ordinary bearings
"B" Grade for bicycles, etc.
"Hardware" Steel Balls for Sash Pulleys, etc.

USE THE BEST BALL MADE

"High Duty" Steel Balls

For High Speed and Heavy Service

Our Capacity is 500,000,000 Balls per Annum
First Prize for Accuracy, Strength and
Durability, at Paris and Pan-
American Expositions.

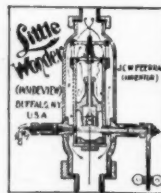
Standard Roller Bearing Company
PHILADELPHIA, PA.

Largest Ball Makers in the World. Also Manufacturers of Ball
Bearings, Automobile Bearings, etc.
Send for complete Catalogue and Ball Price List.

PATENTS PENDING IN ALL COUNTRIES

The Little Wonder Carburetor Manufacturing Company

347 Franklin Street
BUFFALO, N. Y.



This carburetor will fit all classes of motors, from one-horse power up, and is especially adapted to automobile and marine engines.

The "Little Wonder"

Carburetor, used in connection with our Hot Air Generator on the exhaust pipe, is guaranteed to increase your horsepower from ten to twenty per cent, economizing in fuel consumption, giving a perfect mixture in quantity and quality at all engine



speeds; It is 100 per cent safer than the float-feed carburetor, and is positively guaranteed not to ignite or explode, and is absolutely impervious to flame or back-firing.

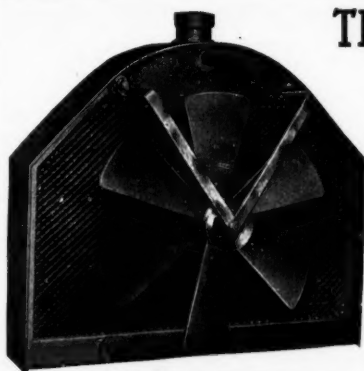
The "Little Wonder" Carburetor is hot-air jacketed, as enclosed cut shows, thereby increasing the vaporization of the gasoline, and giving a hot gas mixture under all atmospheric conditions. Our Carburetor will not leak, freeze, flood or cause any trouble, as is the case with other carburetors now on the market. Our object in placing this carburetor on the market has been to supply the increasing demand for an entirely automatic, simple, reliable and absolutely fireproof form of carbureting device. That we have succeeded in our efforts has been thoroughly proved by the appreciation of the many users and advocates of the pump-feed type of carburetor. In the "Little Wonder" Carburetor the air as well as the gasoline can be regulated at will by the operator. Our Carburetor is so simple that anyone of ordinary mechanical ability may perfectly adjust and apply same to motor.

Prices quoted upon application.

Generator, listed \$10.00 Carburetor, listed \$15.00

Ask for quotation and give diameter of exhaust pipe, 1 1/2" up. We build Gas Engines and Steam Engines; also Racing Machines for roadway and waterway, all combined in one. See cuts. Ask for prices on our Wheel Crank for pulling off and on wheels. Respectfully yours,

J. C. W. FEERRAR, General Manager and Owner.



THE WHITLOCK COOLER

Tested and Adopted by

90 Per Cent

of the Leading
Manufacturers of

**HIGH GRADE CARS
FOR 1903-1904-1905**

Any Design or Style of
Cooler Made to Order

**THE WHITLOCK
COIL PIPE CO.**

U. S. Patents Pending.
Patented in England, France and Belgium.

Hartford - Conn.

THE "AMERICAN" STORAGE BATTERY FOR IGNITION—MONITOR TYPE—

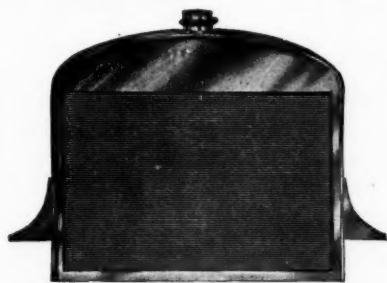


VOLTAGE—4, 6 AND 8. CAPACITY—20 AMPERE—HOURS. PRICES—\$6.00, \$9.00, \$12.00
OTHER STYLES—\$3.25 to \$32.00.

CATALOGUES ON REQUEST.
ESTABLISHED 1889.

AMERICAN BATTERY COMPANY
165 SOUTH CLINTON ST., CHICAGO, ILL.

STOLP COOLERS



Patents Pending

GOOD COOLERS



**Stolp Mfg. Co.
CHICAGO**

Veeder ODOMETERS

For \$10.00 you can get the Form B Veeder Odometer which goes on the left steering arm, and for \$25.00 you can get the Form D, which goes on the dash. The latter type has two registers, one of which may be set to zero at will.

"It's Nice to Know
How Far You Go."

THE VEEDER MFG. CO., 25 Sargeant St., Hartford, Conn.
Cyclometers, Odometers, Tachometers, Counters and Fine Castings.

GILSEY HOUSE

UP-TOWN

Corner 29th and Broadway
New York

Rates \$1.50 up

Cafe a la carte

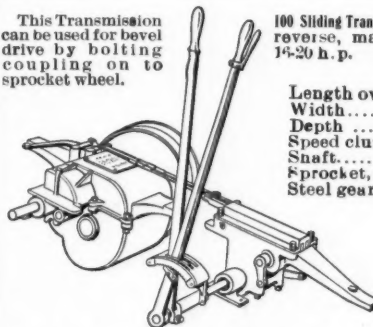
GEORGE W. MOORE, Manager

This Transmission can be used for bevel drive by bolting coupling on to sprocket wheel.

100 Sliding Transmissions, 3 speeds forward and reverse, made for 2 cyl. Cleveland car, 14-20 h. p.

DIMENSIONS

Length over end supports...	24 inches
Width.....	18 "
Depth.....	11 "
Speed clutch.....	13 3/4 "
Shaft.....	1 1/2 "
Sprocket, 10 tooth.....	1 1/4 x 5/8 "
Steel gears, hardened.....	8 pitch



**PRICE
\$60.00
NET**

The Automobile Supply Company
1339 Michigan Blvd., Chicago, Ill.

STOP THAT NOISE!

NEW PROCESS PINIONS

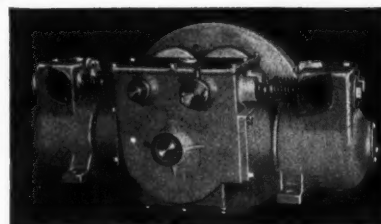
Will stop the racket made by your
Time Gears, Pump Drive Gears or
Igniter Gears, and will outwear all
other kinds of Noiseless Pinions.

LET US HEAR FROM YOU.

THE NEW PROCESS RAW HIDE CO.
SYRACUSE, NEW YORK

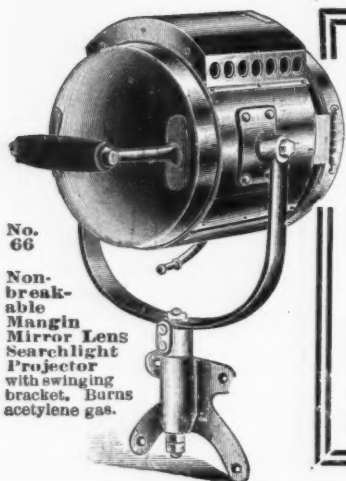
25 H. P. Vertical 16 H. P. Opposed

High-Class Automobile Motors



**The
A. Streit
Machine
Co.**

**CINCINNATI
OHIO**



No. 66

Non-breakable
Mangin
Mirror Lens
Searchlight
Projector
with swinging
bracket. Burns
acetylene gas.

You can always tell

The Neverout
TRADE MARK

Mirror Lens Searchlight

by the rare brilliance of the light it throws ahead.

The New Neverout
patent safety gas producer

furnishes the purest, driest and best gas, and is always ready for use, no matter how long the carbide has been standing unused.

Write for free illustrated catalogue.

ROSE MFG. CO., 912 Arch St., Philadelphia



BE SURE YOU ARE RIGHT
THEN GO AHEAD.

Before starting on a trip test your batteries with the **ROBERT VOLT-AMMETER**

There's no possible need for worry or anxiety after the "Robert" says your batteries are O. K. It is ESPECIALLY VALUABLE FOR TESTING BATTERIES. Every automobilist or engine user should use the Robert Volt-Ammeter to ascertain the EXACT condition of their batteries.

It responds accurately and instantaneously. It is convenient (pocket size). Contains no intricate mechanism, and will last indefinitely.

Guaranteed. No Inconvenience. No Disappointment.

You know just how your batteries will work when you use the Robert. Price, including Leather Case, \$6.00. (0.3 volts, 0.30 amperes) (0.6 volts, 0.30 amperes) (6 volts, 12 amperes)

Write for circular and discounts.

ROBERT INSTRUMENT CO.
63 Shelby Street. DETROIT, MICH.

Double Service

Owners of automobiles or launches who use the **Apple Automatic Sparker** have no trouble with weak storage batteries or ignition faults of any kind. With the **APPLE AUTOMATIC SPARKER** you can keep your storage batteries always charged and ready to give a strong, steady spark at all times. It is far ahead of any European Dynamo. Besides this, the **APPLE AUTOMATIC SPARKER** gives double service by giving ample power for three electric lights whether the engine is running or standing still.

We are specialists in Ignition Apparatus. If you have ignition troubles of any sort, write us to-day.

The Dayton Electrical Mfg. Co.
75 Beaver Bldg. DAYTON, OHIO



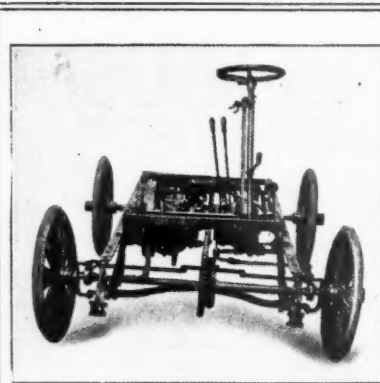
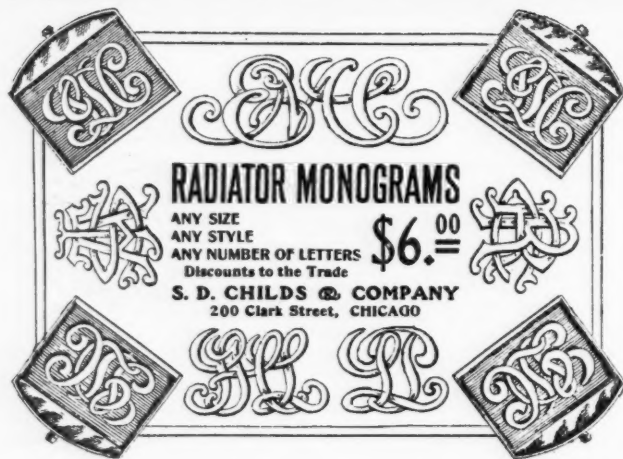
MUD
FORGET IT AND USE
WEED'S TIRE GRIPS.

POSITIVELY STOPS SLIPPING OR SKIDDING.
THEY MAKE BAD ROADS GOOD.
WEED CHAIN TIRE GRIP CO.

SEND FOR
BOOKLET "C"

28 MOORE ST.

NEW YORK CITY.



Hall's Patent Front Drive and Steering Device
Patented October 1, 1901

STOP
pushing your Autos. Get
FRONT DRIVE

which will **PULL** your Automobile same as a team of horses.

Also does away with Sticking in the Mud, or Skidding on Wet Streets.

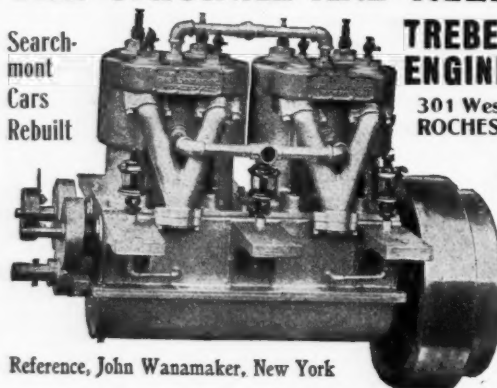
Write for full particulars.

For sale at
BECK & CORBETT'S IRON CO.
ST. LOUIS, MO.

Manufactured by
AUTO FRONT DRIVE MFG. CO.
2821 Easton Avenue
ST. LOUIS, MO.

THE ORIGINAL AND RELIABLE

Search-
mont
Cars
Rebuilt



Reference, John Wanamaker, New York

TREBERT GAS ENGINE CO.

301 West Main St.
ROCHESTER, N.Y.

Up-to-date Engines. Transmission Gears and Clutches. Equal to the very latest French production; air and water-cooled motors. Air, 1 to 4 cyl., 2 to 15 h. p. Water-cooled Motors, 1 to 8 cyl., 10 to 45 h. p.

MOTORS—All Commercial Sizes

CONTINENTAL ENGINE CO.

NEW OFFICE AND FACTORY

Cor. Kingsbury and Huron Sts.

CHICAGO, ILL.

1½-40 h. p. 2 and 4 cycle.

Designs and Specifications

From us are up to date and money savers.

SPECIAL SHOP WORK

Inspection and

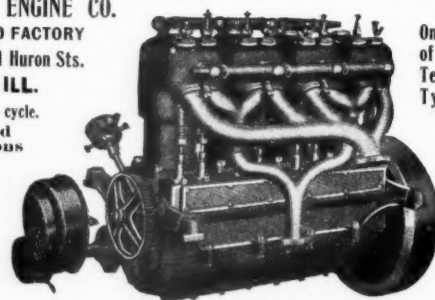
Testing Experts

Transmissions,

Reverse Gears,

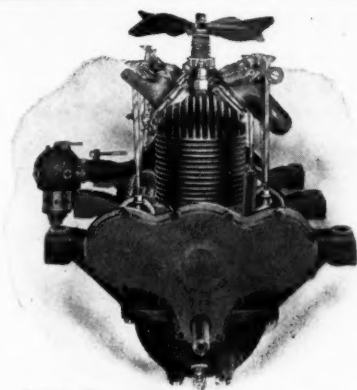
Marine Outfits

Telephone North 1607



One
of
Ten
Types

Type B—3½ x 4½ Engine



MERKEL High-Speed Auto Engines

The Crank Case on the Merkel is made of Aluminum Alloy, 95 per cent. pure, 5 per cent. Nickel. The Crank Shaft is hammered forging, 30 carbon steel. Connecting Rods are drop steel forgings. The Cylinders are special hard, close grained casting with heads cast integral. The cooling is distributed equally to each cylinder. Merkel Engines induce the sale of your autos. Install them before cold weather comes. Write for prices to-day.

MERKEL MOTOR CO.
Factory, Layton Park
1097-26th Ave. Milwaukee, Wis.

Form H
Air-Cooled, 4-Cylinder Vertical. $3\frac{1}{2} \times 3\frac{1}{2}$ in. 12-14 B. H. P.

Acme Motor Cars

**POSITIVE CONTROL—STARTING AND STOPPING
ABSOLUTELY RELIABLE—GOING AND COMING**

Without flourishes or fads Acme Motor Cars are the most widely developed and thoroughly practical made. Are simplest in construction and easily accessible at any working point.

DEMONSTRATION IN TEN CITIES

ACME MOTOR CAR CO. :: Reading, Pa.

J. W. Mears, Brooklyn.
Ensign & Moore, Binghamton, N. Y.
Devlin & Co., Chicago.
Southern Automobile Co., Atlanta, Ga.
T. G. Bradford, Wilmington, Del.

Boston Motor Co., Boston.
Liberty Automobile Co., Pittsburg.
Acme Motor Car Co., Philadelphia.
Acme Motor Car Co. of N. Y.,
New York City.

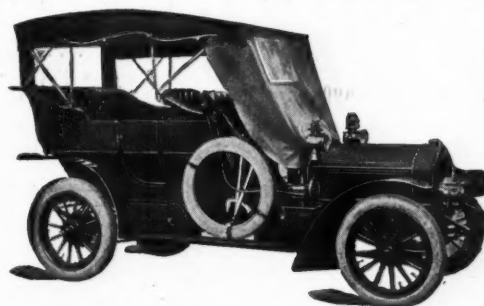
MUD GUARDS HOODS AND FORGED IRONS

"The Best Kind"

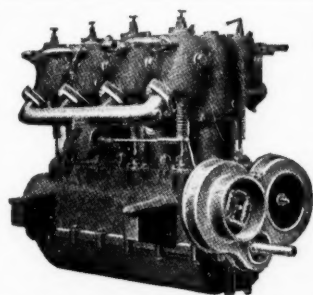
HAYES MFG. CO.

750 Bellevue Ave. Detroit, Mich.

CATALOGUE ON REQUEST



**APPERSON BROS., KOKOMO
INDIANA**



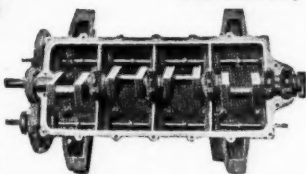
"Aster" Motors

From 1 to 60 H. P.

**Automobile Motors
Marine Motors
Electric Groups
Stationary**

Gas, Gasoline and Kerosene

A. J. MEYERS, Manager
Office, 1659 Broadway, New York



ALUMINUM CASTINGS

**GUARANTEED
MAXIMUM
STRENGTH**



Grade B For general machine casting, pinions, cog wheels, propeller screws, hydraulic press and pump barrels, piston rods, screw bolts for steam cylinder.

VERY TOUGH AND HARD.

S Bearing metal for bearings, thrust rings, slide valves, cross head jibs, piston rings, etc.

VERY HARD AND DURABLE,

but cannot cut the journal.

In ordering Phosphor Bronze Castings note adaptation of the qualities above given.

**GUARANTEED
MINIMUM
WEIGHT**



**Light Mfg. & Foundry Co., POTTSTOWN,
PENNSYLVANIA**

LATEST TYPE WILLARD LATEST TYPE STORAGE BATTERIES

Are operating Electric
Automobiles Regularly

75 MILES AND OVER ON ONE CHARGE

Write for Particulars

The Willard Storage Battery Company
Cleveland, Ohio

ARTILLERY WHEELS



Made from thoroughly seasoned hickory timber. Having the largest and best equipped Automobile wheel plant in the United States, we are prepared to supply manufacturers in quantity in the shortest possible time.

Write for particulars and our price lists.

BUCKEYE WHEEL CO., Galion, Ohio

GRAY AND DAVIS LAMPS

ARE HIGH GRADE LAMPS

Be sure YOUR CAR
is equipped with them

AMESBURY, MASS.

Rajah

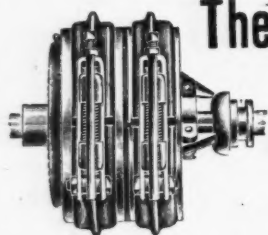
SPARK PLUGS

The Most Reliable

IGNITION
ABSOLUTELY
SURE

Price, Postpaid
\$2.00

RAJAH AUTO SUPPLY CO., 140 Washington Street New York



The Ball Improved Transmission

and REVERSE GEAR

— FOR —

Automobiles and Motor Boats

MADE ONLY OF SPUR GEARS

Patented April 9, 1901; Nov. 3, 1903; Jan. 12, 1904;
Feb. 23, 1904.

NEW YORK GEAR WORKS, 56 Greenpoint Ave., Brooklyn, N. Y.

Western Agents: J. H. Neustadt Co., St. Louis, Mo.

The IGNITION PROBLEM is SOLVED in the "Lacoste" High Tension Magneto for Jump Spark Ignition

We guarantee this device to be ABSOLUTELY PERFECT.
We have done the experimenting.
No BATTERIES. No COIL. No COMMUTATOR.
Everything for Electrical Ignition.

LEON RUBAY, Sole U. S. Agents, 140 W. 38th St., N. Y.

SPROCKETS

Chains and Differentials

CULLMAN WHEEL CO.

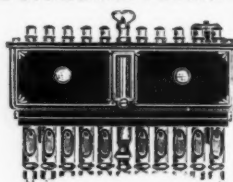
1021 DUNNING STREET, CHICAGO, ILL.

WHEN YOU THINK SPARK PLUGS
\$1.50 THINK NEVER-MISS \$1.50
THAT'S ALL

The up-to-the-minute Jobber and Retailer can supply you. Ask him. There is none just as good. Stand 1/4 in. Winton. Auto Car Metric. Fully guaranteed. You go faster, farther and get back with a Never-Miss. Just try and see. Coils, Battery Connections, Chain Tools, &c. There are a lot of Plugs, but only one Never-Miss, and made at Lansing Mich.

NEVER-MISS SPARK PLUG CO.

A LUBRICATOR FOR ANY CAR, ANY SYSTEM



Patent Pending.

J. T. PEDERSEN, 642-644 First Ave., N. Y.

An automatic pressure feed oiler, instantly converted into GRAVITY FEED. Each sight feed in itself an automatic pump equally well used with any system of lubrication.

Made with any number of feeds. Write for circular. Manufactured by

WITHERBEE



Storage Batteries

Are guaranteed to give satisfaction or purchase money will be refunded

With our economy recharging outfit you can recharge your batteries either in your home or office. Write for descriptive pamphlet.

FOR SALE BY THE LEADING JOBBERS

WITHERBEE IGNITER CO.

27 THAMES STREET

N. Y.

The "Breech-Block" Plug



The Plug
With a Handle

To take out your watch or open a Breech-Block requires just the same time, same tools, same effort, and one twist cleans the entire porcelain to the whiteness of snow.

To remove the porcelain only, loosen the clamping nut and it drops out of its holder, and the gaskets of copper drop with it. No digging!

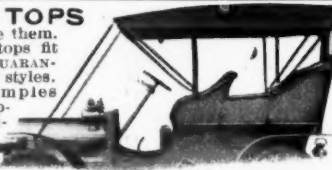
It is nicked inside and out. Highly polished and dust-proof. Sparks between two adjustable points and not between one point and the shell. Its points are protected.

Porcelains are hand turned and so perfectly glazed that soot cannot stick to them. Their threads are cut to perfection, and every particle of the idea of cheapness is left out of them. Can you think of a way to improve them regardless of cost?

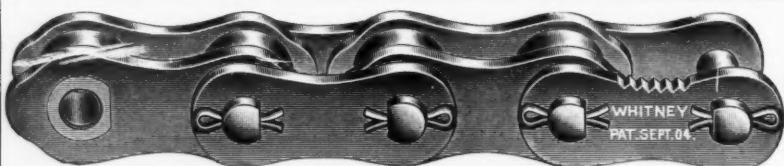
Postpaid, Anywhere, \$2. Booklet Free. Made by EARL CANEDY, 2002 West Ave., CHICAGO HEIGHTS, ILL.

GOOD TOPS

We make them. LONDON tops fit any car. GUARANTEED all styles. Prices, samples and description of construction mailed on request.



LONDON AUTO SUPPLY CO., 1229 Michigan Ave., Chicago



THE WHITNEY MFG. CO., Hartford, Conn.

You will notice "WHITNEY" CHAINS

on most of the Leading Cars.



Gilbert Auto Fabric Supplies

LOOK FOR THE NAME

FOR SALE AT LEADING SUPPLY HOUSES. CATALOG SENT ON REQUEST.

The Gilbert Mfg. Co.
New Haven, Conn.

E&J

We want every manufacturer of Automobiles to consider our proposition for 1906 equipment.

FULL LINE—Both GAS and OIL

We can please you in both quality and price.

WE GUARANTEE IT

Edmunds & Jones Mfg. Co.
DETROIT, MICH.

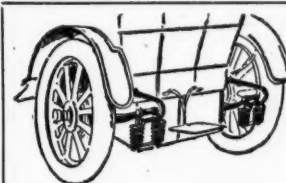


Eclipse Pocket Ammeter

For General Battery Testing
0 to 20, 0 to 30 Amperes.

"Ready to use", with short, flexible cord attached. Can be used in any position and works in either direction of current. Provided with a neat kid leather case for carrying.

Eldredge Electric Mfg. Co.
Springfield, Mass. U. S. A.



Absorbs all vibration



The Supplementary Spiral Spring

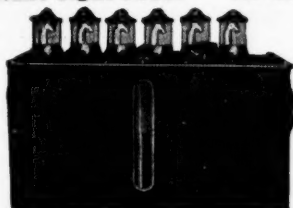
No jolts or rebounds. Acts alike under light or heavy loads

Stands the test. Adds comfort and new delight to motoring. Saves engine, tires and springs. Will please you as it has hundreds of others. Write for circular to-day and state make and model of your car.

SUPPLEMENTARY SPIRAL SPRING CO.
4527 Delmar Ave., St. Louis, Mo.

Force Feed Lubrication

Constant Sight Feed. No Liquids



McCord & Co., 1402-80 Old Colony Bldg., Chicago

E. J. Day & Co., Pacific Coast Distributors
324-326 Golden Gate Avenue, San Francisco, Cal.

SHELBY

SEAMLESS-STEEL-TUBING

BEST MADE FOR
AUTOMOBILE CONSTRUCTION.

SEND SPECIFICATIONS
WE QUOTE PRICES

SHELBY STEEL TUBE CO.

PITTSBURG, PA.

BRANCH OFFICES - NEW YORK - CHICAGO.

If you want the agency for a \$2,500 car to sell at \$1,250, write today for the most attractive proposition in America.

Wayne Automobile Co., Dept. H.
Detroit, Mich.

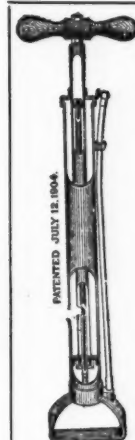
Searchmont Cars Rebuilt

Searchmont Repair Parts of every description for sale.

FAIRMOUNT ENGINEERING WORKS
3209 Spring Garden Street, Philadelphia, Pa.

MENDENHALL'S ROAD MAPS

ROAD MAPS—Ohio, 25c; S.W. Ohio, 35c; N. Ohio, 35c; Ind., 25c; N. W. Ind., \$1.00; Ill., 25c; Ky., 50c; Mich., 25c; Pa., 25c; Ia., 25c; Mo., 25c; N. Y., 75c; N. J., 50c; Wis., 25c.
C. S. MENDENHALL, Pub., 512 Race St., Cincinnati.



SKINNER COMPOUND TIRE PUMP

200 lbs. pressure with less effort than 50 with any other

\$5 ON APPROVAL
AT ALL DEALERS

Skinner & Skinner

Manufacturers

4133 Indiana Ave., Chicago

"SOLDERENE"

A new rapid flux and tin combined for mending and soldering all metals without the use of the solder, soldering iron, acids, etc., by simply heating the article and applying Solderene. A stick should be in every Repair Kit.

Sample 10c. Dealers Write for Price.
CHAS. A. THOMPSON CO.
39 Cortlandt Street New York City

1905 YANKEE GRADE METER. PRICE \$7.50.

This Grade Meter is the handsomest article of its kind on the market, and is positively accurate. No vibration of the indicating hand.

YANKEE MICA SPARK PLUG. PRICE \$1.50.

Double Insulation, Compression End, Rigid Points, most reliable and popular Plug on the market. 40,000 sold last year. Guaranteed 90 days.

Everything for the Automobile. Mammoth catalog for 10 cents in stamps.
E. J. WILLIS CO., 7 Park Place, New York.

Dust Guards

Make Motoring
a Clean Sport

For \$20.00 I guarantee automobilists absolute freedom from dust. Booklet to inquirers.

W. H. BROWN

124 W. Jackson Blvd., CHICAGO, ILL.

Tire troubled? Write for "Good News Book." Free. Goodyear Tire & Rubber Co., Wallace St., Akron, O.



HIGH-GRADE EXTENSION AND VICTORIA TOPS

**THE MYERS-DAYTON
TOP CO.**

Corner May and Commercial Streets, Dayton, Ohio

READ MOTOR AGE ... \$2.00 per Year

When Writing to Advertisers, Please Mention Motor Age.

WELCH

1906 LIMOUSINE CAR 1906

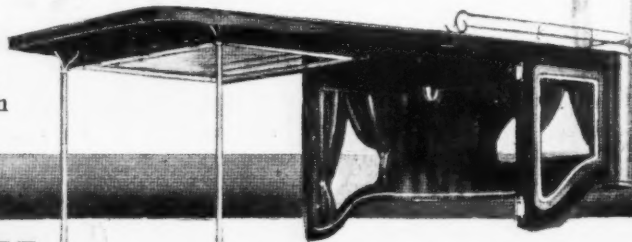
FOR

FALL AND WINTER USE

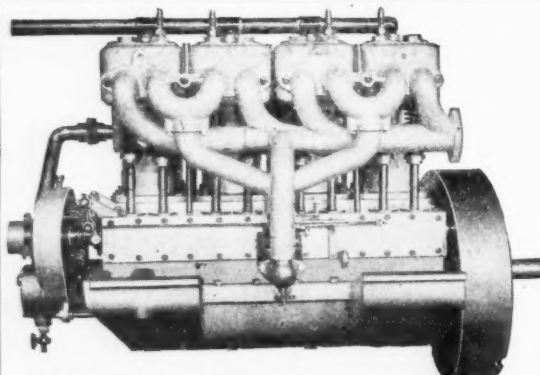
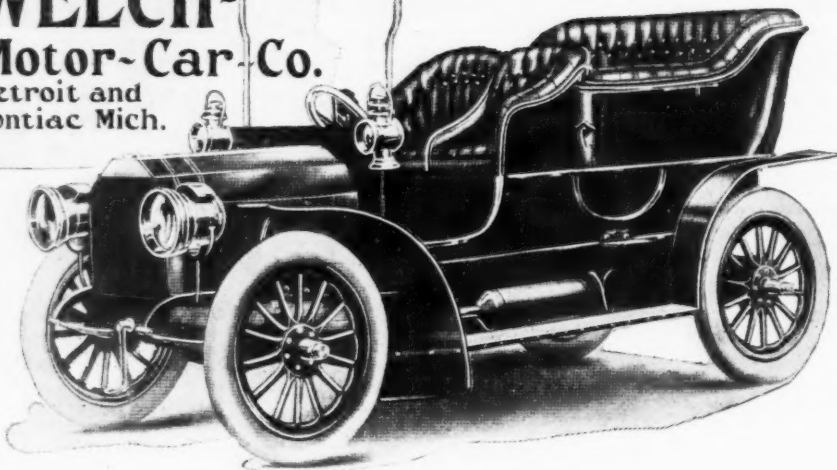
PRACTICALLY IMMEDIATE DELIVERIES

¶ Ask for 1906 Catalog just out, describing WELCH PATENT DETACHABLE PULLMAN LIMOUSINE CARS.
¶ Seven passenger car to suit all seasons; Cape Top in Summer, Half Limousine in Fall and Pullman Limousine in Winter. ¶ 4 to 50 miles on direct drive.

So simple
a child can
operate.



WELCH-
Motor-Car-Co.
Detroit and
Pontiac Mich.



GASOLENE MOTORS

FROM 1 to 12 Cylinders
12 to 180 H. P.

We build Gasolene Motors for
Racing Cars, Passenger Busses,
Delivery Trucks, Launches, and
Grading Locomotives.

Correspondence Solicited

Milwaukee Auto Engine & Supply Co.
706-708 Winnebago Street, Milwaukee, Wis.

EVERY CAR SHOULD BE EQUIPPED WITH The Wilson Auto Clock



TELLS
TIME
RIGHT
DAY
AND
NIGHT

By day, the large figures can be plainly seen from the seat. A slight pressure of the button illuminates the face at night, producing enough light for various purposes on the road, as well as to "tell the time." Handsome compact case of highly polished brass, containing famous Elgin works—7 jeweled movement..... **\$15**
15 jewels, \$25.00.

Wilson Auto Clock Co., Inc. 935 Arch St. PHILA.

CANDY CARBIDE

For FRENCH AUTO LAMPS (Impregnation dans le vide)

Packed only in 10 lb. cans. Price \$2 each.
Discount to dealers in case lot of 12 cans.

SOLE MANUFACTURERS

ACETYLENE GAS ILLUMINATING CO.
105 WALKER STREET NEW YORK

A PLEASURE TO HEAR THE GABRIEL HORN

Something New and Sensible for
Automobiles, Auto Boats and Launches



Blows a full, strong blast from exhaust of gasoline engine, or can be attached to steam, same as ordinary whistle; blows with less than one pound pressure.

Each horn is tuned to a musical key—no discordant screeching note—is easily blown, and is strong and durable.

Comes in three styles—single, two or three horns.

Write today for Catalogue, giving prices and full information.

GABRIEL HORN AND MANUFACTURING CO.
970 Hamilton St., Dept. B, CLEVELAND
New York Branch, 148 West 56th St.

STEEL CASTINGS

FOR AUTOMOBILES A SPECIALTY
WRITE FOR SAMPLES AND PRICES

MILWAUKEE STEEL FOUNDRY CO

MILWAUKEE, WIS.

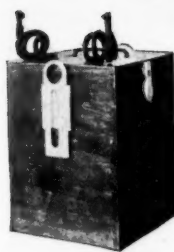
LEA TIRE PUMP

Inflates the tires uniformly
and with one-tenth the
effort required by
other pumps.



WM. S. JONES
112 N. Broad St.
Philadelphia

Write for latest illustrated booklet B and proposition to agents.
Sole Selling Agent for
MOTOR CAR SPECIALTY CO.
Trenton, N. J.



"Exide" SPARKING CELLS

These cells have been designed and assembled with great care, especial attention having been given to each detail, making them a practical ignition cell for gasoline engines in Automobiles and Auto Boats.

THE ELECTRIC STORAGE BATTERY CO. PHILADELPHIA, PA.

DEPOTS FOR THE PROMPT DELIVERY AND CARE OF EXIDE BATTERIES:

Philadelphia, 250 North Broad St.
New York, 49th St. and 8th Ave.
San Francisco, 635 Howard St.
Pasadena, 33 South Raymond Ave.

Minneapolis, 3d Ave. South & 5th St.
St. Paul, 372 Minnesota St.
Pittsburgh, 5905 Centre Ave.
Rochester, 150 South Ave.

Portland, Ore., 140 5th St., N.
Cleveland, 404 Huron St.
Detroit, 265 Jefferson Ave.
Chicago, 204 East Lake St.

Buffalo, 200 Pearl St.
Boston, 39 Stanhope St.
Savannah, 309 Bull St.
St. Louis, 809 Walnut St.
Denver, 1449 Clarkson St.

SALES OFFICES:—New York, Boston, Chicago, St. Louis, Cleveland, San Francisco, Toronto, Canada

OLD Tires Made NEW
New Tires Made Puncture-Proof

NEWMASTIC FILLING
For Clincher and Single Tubes

Just as Resilient as a Pneumatic
Just as Safe as a Solid Tire
How Do We Do It?
Write Us and Learn

NEWMASTIC TIRE CO.

1303 Michigan Ave., CHICAGO, ILL. Tel. South 1301
ST. LOUIS, MO.



RUTENBER GASOLINE GAUGE



is simpler in construction than any other gauge offered. No tape floats or magnetic arrangement to get out of order. Every Gasoline Automobile or Motor Boat should have one. Agents wanted. Special inducement for hustlers.

RUTENBER CO.,
226 East 52d Street
CHICAGO

Bausch & Lomb

MANGIN

Search Light Mirror Lenses

Afford the only means of utilizing ALL of the light produced by the burner of an automobile headlight. You never can have too much light if you want to ride safely at night. Be sure your lamp has a B. & L. Mangin Mirror.

¶ These mirrors are of optical glass as accurately ground and polished as the search-light mirrors used on battleships, silvered by our own process, which assures the utmost brilliancy and permanence and tempered to withstand heat and vibration.

¶ See that your lamps have these mirrors. They are used by all the best lamp makers.

¶ When used on launches and motor boats of all kinds you are insured against accidents.

BAUSCH & LOMB OPTICAL CO.

Manufacturers Microscopes, Photographic Lenses
and Shutters, Eyeglass Lenses, Field Glasses, etc.

ROCHESTER, N. Y. NEW YORK. CHICAGO.
BOSTON, SAN FRANCISCO, FRANKFURT, A/m Germany.

WHAT YOU WANT—WHEN YOU WANT IT

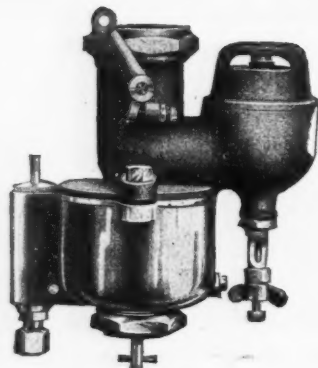
SYRACUSE ALUMINUM AND BRONZE COMPANY
SYRACUSE, N. Y.

ALUMINUM

CASTINGS

BRONZE

HOLLEY CARBURETORS



MODEL E STANDARD

Prices, top or side outlet, are as follows:

	With Pipe Thread
1/2 in. and 3/4 in. gasoline outlet.....	\$11 00
1 in. gasoline outlet.....	12 00
1 1/4 in. gasoline outlet.....	13 00
1 1/2 in. gasoline outlet.....	14 00

We are now prepared to furnish our new **Model "E"** carburetor for 1905 Winton cars Models B and C. This carburetor is furnished with aluminum manifold, so that old carburetor can be removed and the new one bolted in place with very little work. Price of special Model "E" carburetor with manifold for Model B and C Wintons, \$18.00.

Increase the power of your car by equipping it with one of the following special **Holley Carburetors**.

SPECIAL SIZE FOR

Oldsmobile Runabout.....	\$12 00
" Tonneau Car.....	11 50
" Touring Runabout.....	11 50
Ford 10 H. P., Model C.....	11 50

Write for Circular E. Full Information sent on request

HOLLEY BROS. CO.
672 Beaubien St., DETROIT, MICH.

CHICAGO AUTO AGENCIES

Pardee-Ullmann Co.

Agents for

**Packard and
Baker Electric**

CARS FOR RENT

1218-1220 Michigan Avenue

Phone 557 South CHICAGO, ILL.

The McDUFFEE Automobile Co.

Distributors for

Stoddard-Dayton and Royal Tourist

Phone South 1297

1449 Michigan Ave. CHICAGO

Cadillac Automobile Co. of Illinois
1312 Michigan Avenue, Chicago

CADILLAC

Four Cylinder, High Power Touring Car

Light Touring Cars Runabouts Delivery

C. A. COEY & CO.

Illinois and Eastern Iowa Agents for the

THOMAS FLYER

Always on hand—Bargains in New and Used Cars of all descriptions :: :: :: PHONE SOUTH 1042
1323-1325 Michigan Avenue, Chicago

RENZ & CO MANNHEIM, GERMANY

ESTABLISHED IN 1883
THE OLDEST AUTOMOBILE MAKERS IN THE WORLD
FIRST CAR PATENTED JANUARY 29, 1886
OVER 4,000 NOW IN SUCCESSFUL OPERATION
Prices, \$3,500 to \$15,000
ALL CARS IMPORTED COMPLETE (LESS TIRES)
Immediate Delivery
MEAD CYCLE CO., Chicago

TIRE REPAIRS

All makes and types given equal attention
Correspondence solicited

RUBBER GOODS REPAIR CO.

89 16th St., Chicago. Phone South 1280

LAMBERT Friction-Drive Automobiles...

12-16-32 h. p., \$1000 to \$2000

Write for Catalogue

ADLAND MOTOR CO.

1303 Michigan Ave., Chicago

EVERYTHING IN
AUTO
SUPPLIES
FOR OWNER AND DEALER
SEND FOR CATALOGUE No. 49
EXCELSIOR SUPPLY CO.
ESTABLISHED 1876 CHICAGO

OLDSMOBILE

Agents and Distributors for Illinois and Wisconsin

THE GITHENS BROS. CO.

1328 Michigan Ave., Chicago

Telephone, South 1658

GET YOUR TIRES FILLED WITH OUR

TIRE FILLING

And rid yourself forever of that constant fear of punctures, leaky valves, etc.

Write for particulars and testimonials

PULLMAN AUTO CAR CO.

5035 Cottage Grove Ave., CHICAGO

The Importers' Company

AGENTS FOR

Richard-Brazier Cars

1400 Michigan Avenue CHICAGO

PHILADELPHIA AUTO AGENCY

QUAKER CITY AUTOMOBILE CO.

138 to 146 North Broad St., PHILADELPHIA

OLDSMOBILE } Representing { **WHITE**
FRANKLIN } **POPE-TOLEDO**

The finest fireproof garage and the best equipped machine shop in the state. Tourists will find excellent storage and courteous attention.

ROCHESTER AUTO AGENCY

United States Automobile Co.

The largest garage and best equipped machine shop in New York State. Special attention given tourists night or day. Agents for

Thomas Flyer Stevens-Duryea Orient
Pierce-Arrow Oldsmobile Buick

Lists of Auto Dealers and Owners

Verified list of 4,800 auto dealers in U. S.
Verified list of 60,000 auto owners in U. S. Also sells make of machine. No duplicates. Names arranged alphabetically by towns. New names published weekly. Postage guaranteed.
For full information address

Auto Directories Co., 108 Fulton St. N. Y.

Established 1891.

POPE -TOLEDO
-HARTFORD
-TRIBUNE
-WAVERLY

ORLANDO F. WEBER CO.

(INCORPORATED)

Distributors for

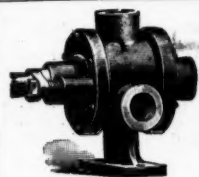
CHICAGO and MILWAUKEE

1322-26 Michigan Ave. 321-25 Fourth St.
Phone 1047 South Phone 2781 Main

BOWSER GASOLINE TANKS

We manufacture Gasoline Storage Outfits—all kinds. Self-measuring Outfits for Garages; smaller, less expensive ones for private automobiles. It will pay you to investigate our

Long Distance Gasoline Storage System
"Tank buried—Pump located in building." Over a dozen styles from which to select. Ask for catalog.
S. F. BOWSER & CO., Inc., XV Ft Wayne, Ind.

**LOBEE ROTARY PUMP**

4000 in use demonstrating its efficiency with all types of radiators for circulating water or oil in gasoline motors. **Lobe Pump Co.,** 240 Terrace, Buffalo, N. Y. C. E. Miller, Agt., 97 Reinde St., New York, A. L. Dyke Auto Supply Co., 4703 Olive St., St. Louis, Mo.

**People Say The U. S. Is Best**

Lifts any car. Quick Acting. Cannot Break. No Loose Parts. No Rattle.

PRICE TO INTRODUCE, \$2.25
Guaranteed. Patent Applied For.
THE U. S. JACK CO.
352 S. Claremont Ave.
CHICAGO.

CHAIN TOOL
35c
THE HUSKY KIND
SENT PREPAID FOR 45c
THE MOTOR CAR SUPPLY CO.
1427 MICHIGAN AVENUE CHICAGO, ILL.

Specify **Auto Cle** on Your 1906 Car

WRITE FOR CATALOG

RAILWAY APPLIANCES CO.
Old Colony Building :: :: Chicago



All Leading Automobile Manufacturers Use this Cushion Spring.

Ask for Samples and Prices.

National Spring & Wire Company, Albion, Mich.

HUSSEY DROP FORGINGS AND UNIVERSAL JOINTS

Used by the largest American manufacturers. Get our estimates on all kinds of automobile work.

HUSSEY DROP FORGE & MFG. CO.
2020 Axtell Street CLEVELAND, OHIO

BODIES AND TOPS

C. P. KIMBALL & CO.

315 Michigan Ave Chicago

THE YANKEE SILENT MUFFLER (Pat.)

—Excels all Mufflers because the discs expand according to the size of the explosion. A vacuum is created between the exhaust valves and the Muffler, and back pressure overcome. 10 per cent more power guaranteed. Radiation so great that the Muffler keeps cool. Made to fit all makes of cars. Send for catalogue and price.
D. B. SMITH & CO., Utica, N. Y., U. S. A.



Of course if we would spend all our money for advertising as other people do, we could not put the exceptional values in our plugs as we do. Read this testimonial:

Ralph C. Lewis Levi Matthews
THE LEWIS & MATTHEWS CO.
Foreign Automobile Selling Agts. Garage
and Domestic 66, 68, 70 Stanhope St. Supplies
Repairs
Cable Address: "Autohead" Used Cars
Telephone Tremont 711 Boston, Mass., June 23, 1905

Herz & Company, 187 Elm St., New York, N. Y.:
Gentlemen—Herewith kindly find check to cover the amount due you. Also please enter our order for twelve (12) of your Bougie Mercedes 1905 plugs in the metric 19 m. m. size similar to our last order. We wish to express ourselves as very highly pleased with the Bougie Mercedes plugs and feel sure you will be glad to know that through all our automobile experience we have never found a plug so thoroughly reliable.

Very truly yours, **THE LEWIS & MATTHEWS CO.,**
Ralph C. Lewis (M. M.)

The chauffeur shouts in tones of mirth.
"BOUGIE MERCEDES" best on earth.
It's **DOUBLE STONE**, will never crack.
Absolutely self-cleaning.

Six months' guarantee. Price \$2. The greatest value ever offered. **HERZ & CO., 187 Elm St., New York**
Write for Vademeccum of Ignition.

Special Prices on Clincher Tires
FOR OCTOBER

One of the best tires on the market. We are on the inside.

	Casing	Inner Tube
28x2½	\$13.94	\$3.84
28x3	22.80	4.64
30x3	24.40	4.96
30x3½	31.69	7.04
32x3½	33.75	7.52
32x4	38.93	9.09

We can supply other sizes at proportionate prices.

Neustadt Automobile & Supply Co.
826-28-30 S. 18th St. ST. LOUIS, MO.

ALUMINUM

Aluminum
Automobile
Parts a Specialty

The Pittsburgh Reduction Company
Pittsburgh, Pa.

ONE SQUEEZE DOES THE BUSINESS

Nothing like it. Invest a quarter in a "GIBSON" Trick Purse, you'll never regret it. No removing of gloves to deposit or remove coin. Always open for money. All-weather. Guaranteed or money refunded. Free samples for agents and dealers.
GIBSON COIN PURSE CO., Box 1002, Bellefontaine, O.

STA-RITE
DEALERS
Do not buy spark plugs of half a dozen concerns, it isn't necessary.
Condense Your Orders thus obtaining lower prices, and use "Sta-Rites" exclusively. 46 different sizes and styles. Porcelain and Mica, 75c to \$4.00. Secure July, 1905, price list.
The R. E. Hardy Co.
225 W. Broadway, N. Y.
No. 4, ½-in. P. J. DASEY No. 34, ½-in.
Porcelain, \$1.50 431 Wabash Ave., Chicago Mica, \$1.75

ALUMINUM, PHOSPHOR BRONZE, BEARING BRONZE AND BRASS CASTINGS FOR AUTOMOBILES
HOFELLER BRASS FOUNDRY CO.
BUFFALO, N. Y.

Graphite for the Motor
DIXON'S GRAPHITE
Motor Lubricants
Interesting booklet and samples FREE.
Joseph Dixon Crucible Co.
Jersey City, N. J.

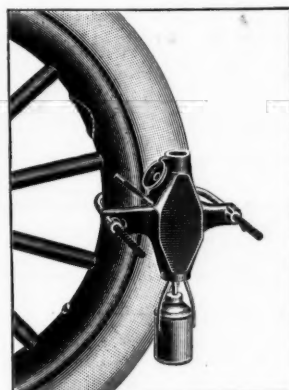
BESTOGO STORAGE BATTERY
Essentially different from other Lead Batteries
SEND FOR CATALOG
Miller Signal Co., 302 JACKSON BOULEVARD
CHICAGO

SPRINGFIELD TOPS
3, 4 and 5 Bow
Aluminum Bodies
Springfield Metal Body Co.
372 Birnie Ave. Brighton
SPRINGFIELD MASS.

SPIRAL TUBING RADIATORS
HOODS ANY STYLE OR SIZE
LONG MFG. CO.
381-3-5 Wabash Ave. CHICAGO

PACKARD ENAMELED IGNITION CABLES
NEVER DISAPPOINT
They are giving entire satisfaction to over 100 high-class automobile manufacturers. Will you permit us to convince you of their worth?
PROOF AGAINST HEAT, GREASE, OILS AND WATER
THE PACKARD ELECTRIC COMPANY
WARREN, OHIO, U. S. A.

MOTOR AGE
GETS THE NEWS
1339 Michigan Ave., Chicago

**ANYBODY CAN USE IT**

Blowouts, sand-balls, glass cuts or other damage—spots on outer casing; torn off stems, split or punctures to inner tubes vulcanized as good as new with our Vulcanizers.

We want to send you circulars, and what others say.
"Stitch-in-Time"
Vulcanizer Co.
Topeka, Kan., U. S. A.

INDEX TO ADVERTISEMENTS

Acetylene Gas Illuminating Co.	74	Edmunds & Jones Mfg. Co.	73	Logan Construction Co.	79	Royal Motor Car Co.	67
Acme Motor Car Co.	71	Eldredge Electric Mfg. Co.	73	London Auto Supply Co.	72	Rubay, Leon.	72
Adams Co.	62	Electric Storage Battery Co.	75	Long Mfg. Co.	77	Rubber Goods Repair Co.	76
Adland Motor Co.	66	Electric Vehicle Co.	59	McCord & Co.	73	Rushmore Dynamo Works.	53
American Battery Co.	79	Elmore Mfg. Co.	63	McDuffee Automobile Co.	76	Rutenber & Co.	75
American Coil Co.	80	Excelsior Supply Co.	76	Mead Motor Co.	76	St. Louis Motor Carriage Co.	48
American Samson Leather Tire Co.	67	Fairmount Engineering Works.	73	Mendenhall, C. F.	73	Saks & Co.	56
Apperson Bros.	71	Ford Motor Co.	55	Merkel Motor Co.	71	Shawver & Co.	79
Atwood Mfg. Co.	89	Franklin Mfg. Co.	43	Mexican Mfg. Co.	75	Shelby Steel Tube Co.	73
Austin Auto. Co.	66	G & J Tire Co.	56	Meyers, A. J.	71	Skinner & Skinner.	73
Auto Brass & Aluminum Co.	80	Gabriel Horn Mfg. Co.	74	Meyers-Dayton Top Co.	73	Smith, A. O., Co.	61
Auto Directories Co.	76	Garford Mfg. Co.	53	Michelin Tire, American Agency.	38	Smith, D. B., & Co.	77
Automobile Equipment Co.	80	Gibson Coin Purse Co.	77	Miller, Charles E.	60	Splitdorf, C. F.	65
Automobile Front Drive Mfg. Co.	70	Gilbert Mfg. Co.	73	Miller Signal Co.	77	Springfield Metal Body Co.	77
Automobile Supply Co.	69	Gulsey House.	69	Milwaukee Auto Engine & Supply Co.	74	Standard Roller Bearing Co.	68
Badger Brass Mfg. Co.	42	Githens Bros.	76	Milwaukee Steel Foundry Co.	74	Steel Ball Co.	49
Baker Motor Vehicle Co.	55	Goodrich, B. F., Co.	54	Mitchell Motor Co.	36	Stevens, J., Arms & Tool Co.	39
Bausch & Lomb Optical Co.	75	Goodyear Tire & Rubber Co.	73	Moline Automobile Co.	64	Stitch-in-Time Vulcanizer Co.	77
Beaver Mfg. Co.	62	Gray & Davis.	72	Morgan & Wright.	Cover	Stolp Mfg. Co.	69
Billings & Spencer.	80	Hardy, R. E., Co.	77	Motor AGE.	46	Streit, A., Machine Co.	69
Bowser, S. F., & Co.	77	Hartford Rubber Works.	Cover	Motor Car Specialty Co.	74	Supplementary Spiral Spring Co.	73
Brennan Mfg. Co.	61	Hartford Suspension Co.	58	Motor Car Supply Co.	77	Swinehart Clincher Tire Co.	66
Briscoe Mfg. Co.	58	Haynes Mfg. Co.	71	Mutt, L. J., Co.	80	Syracuse Aluminum & Bronze Co.	75
Brown, W. H.	73	Haynes Automobile Co.	65	National Motor Vehicle Co.	64	Thomas, E. R., Motor Co.	45
Brown-Lipe Gear Co.	60	Herz & Co.	56-77	National Spring & Wire Co.	77	Thompson, Charles A., Co.	73
Buckeye Mfg. Co.	66	Hoffelner Brass Foundry Co.	77	Neustadt Auto & Supply Co.	77	Timken Roller Bearing Co.	54
Buckeye Wheel Co.	71	Hoffheimer Soap Co.	63	Never-Miss Spark Plug Co.	72	Trebert Gas Engine Co.	70
Byrne-Kingston Co.	50	Holley Bros.	76	Newmist Tire Co.	75	United States Auto. Co.	76
Cadillac Automobile Co.	35	Hussey Drop Forge & Mfg. Co.	77	New Process Rawhide Co.	69	U. S. Jack Co.	77
Cadillac Co. of Illinois.	76	Hyatt Roller Bearing Co.	50	New York Gear Works.	72	Veeder Mfg. Co.	69
Canedy, Earl.	72	Imperial Brass Mfg. Co.	80	Nordyke & Marmon.	68	Vehicle Equipment Co.	62
Childs, S. D., & Co.	70	Importers Co.	76	Northern Mfg. Co.	63	Wabash Railway Co.	79
Coe, C. A., & Co.	76	Jeffery, T. B., & Co.	Cover	Nyberg Automobile Co.	79	Walworth Mfg. Co.	80
Continental Caoutchouc Co.	50	Kilgore Auto Air Cushion Co.	62	Olds Motor Works.	51	Warner Instrument Co.	60-61
Continental Engine Co.	70	Kimball, C. P., & Co.	77	Packard Electric Co.	77	Wayne Automobile Co.	73
Continental Motor & Mfg. Co.	80	Kirchberger, M., Co.	64	Packard Motor Car Co.	Cover	Weber, O. F., & Co.	76
Corbin Motor Vehicle Co.	52	Kirk Mfg. Co.	65	Pardee & Ullman Co.	76	Weed Chain Tire Grip Co.	70
Corwin Mfg. Co.	59	Knoblock & Heldeman Co.	80	Pederson, J. T.	72	Welch Motor Car Co.	74
Cullman Wheel Co.	72	Knox Automobile Co.	67	Pennsylvania Rubber Co.	52	Western Tool Works.	60
Daimler Mfg. Co.	51	Kokomo Rubber Co.	61	Pittsburg Reduction Co.	77	Wheeler, F. H.	58
Dayton Electrical Mfg. Co.	70	Leather Tire Goods Co.	63	Pope Mfg. Co.	40-41	White Sewing Machine Co.	49
Diamond Chain & Mfg. Co.	68	Lester, E. F.	73	Premier Motor Mfg. Co.	57	Whitlock Coil Pipe Co.	69
Diamond Rubber Co.	48	Light Mfg. & Foundry Co.	71	Prest-O-Lite Co.	59	Whitney Mfg. Co.	72
Diamond Stamped Ware Co.	37	Link Belt Machine Co.	57	Pullman Automobile Co.	76	Willard Storage Battery Co.	71
Dietz, R. E., Co.	67	Little Wonder Carbureter Mfg. Co.	68	Quaker City Automobile Co.	76	Willis, E. J., Co.	73
Dixon, Joseph, Crucible Co.	77	Lloyd Iron Roofing & Paint Co.	57	Railway Appliance Co.	77	Wilson Auto Clock Co.	74
Dyke, A. L., Auto. Supply Co.	79	Co.	57	Rajah Auto Supply Co.	72	Winton Motor Carriage Co.	34
E. H. V. Co.	66	Lobee Pump & Machinery Co.	77	Reo Motor Car Co.	47	Witherbee Igniter Co.	72
Eclipse Buggy Co.	80	Locomobile Co. of America.	59	Robert Instrument Co.	70	Wray Pump Co.	65
		Loftis Bros. & Co.	44	Rose Mfg. Co.	70		

MISCELLANEOUS.

Advertisements under this head 3 cents per word first insertion; 2 cents per word for each insertion thereafter. Ads set in any style other than regular setting, 24 cents a line first insertion, 16 cents a line for each insertion thereafter.

Special rates for continuous advertising in these columns upon application.

FOR SALE—24 horse 1904 Thomas touring car. Top with glass front, 2 gas, 3 oil lamps, horn and tools. Car in first class condition. Cylinders recently refitted. Tires first class, extra tubes. Reason for selling, bought 1905 Thomas. Price, \$1,200. H. E. Young, Hanover, Pa.

FOR SALE—Packard 1905 Model "N" touring car, in A1 condition, equipped with over \$700 worth of extras, including the following: Extension cape cart top, glass front, electric searchlights, electric headlights, tail lamp, dash lamp and exploring lamp, with two 6-volt batteries, luggage carrier on rear, Gabriel horn, Warner autometer, dash clock, seat covers, tire carrier, foot rest and robe rail in tonneau, also aluminum storage box, safety sprag, B & J lockswitch, lamp covers, etc. This car is guaranteed in absolutely first class condition in every respect and will be sold at a decided bargain considering the condition and equipment. Pardee-Ullmann Co., 1218 Michigan Ave., Chicago, Ill.

FOR SALE—1902 Winton; fine condition; a bargain. H. Thomann, Riverside, Ia.

FOR SALE—A Prescott steamer, 1905 style, in first class shape, used only three months. Reason for selling, want to buy a larger car. Make offer. Address Motor Age, Box 4.

FOR SALE—Established auto factory in good manufacturing and distributing center in middle west. New models completed. Satisfaction reasons for selling. Address P. O. Box 194, Indianapolis, Ind.

WANTED—Second hand motor cycle for cash. Must be a bargain. B. G. Raymond, St. Cloud, Minn.

FOR SALE—1905 Marion air-cooled car, or will exchange for a 1905 White. Dr. A. B. Poore, Cedar Rapids, Ia.

FOR SALE—Haynes-Apperson, 16 h. p. touring car; used very little; in perfect condition; a snap for the early buyers. Burney Bird Auto Co., 319 Wabasha St., St. Paul, Minn.

FOR SALE—1904 Northern touring car, with new 1905 motor, extra tires, large headlight. A bargain. Address C. E. Haynes, Cadillac, Mich.

MANUFACTURERS

Desiring a practical "Auto" man with sound business judgment, experience in manufacturing lines and repairs on cars, for salesman, agent, office, etc., will correspond immediately. Address C. B., MOTOR AGE.

WANTED—First class automobile shop man. Must be a good all-round man. State age, experience, present wages, wages expected. Write for further information and send references to Abbott Cycle Co., New Orleans, La.

FOR SALE—Model L Rambler; has double opposed motors, 16 h. p.; looks well and is in good condition; tires almost new; sell cheap. One 1905 Model F four-cylinder, air-cooled Premier; new; never run; sell at a bargain. W. E. Rudy, Lima, Ohio.

PEERLESS 1904, four cylinder, 24 h. p., \$1,500; aluminum body; tires new; will give one hundred mile demonstration. Bargain. D. W. Worthington, 326 N. Broad St., Philadelphia, Pa.

FOR SALE—Rambler runabout, in first class condition, \$250; must sell. Chas. Newcomb, Huntington, Ind.

BARGAIN—1904 White Steamer, in first class condition; looks like new nearly; not much used; thoroughly reliable. Buy the best. Alfred L. Wilson, 103 Miller Ave., Columbus, O.

FOR SALE—A good established automobile business located in the northern part of Illinois in city of 40,000. Only automobile business in city, with over one hundred cars in use. Party owning business engaged in other lines and cannot give sufficient time to the automobile work. Address J. G., MOTOR AGE.

FOR SALE—Knox, \$600. Nearly good as new. John W. Higgins, 228 West St., Worcester, Mass.

AUTOMOBILE FIRM closing out business. Studebaker electric runabout (brand new) at great reduction. Pierce stanhope (slightly used, fine condition) very cheap. Address 51 Woodward Ave., Detroit, Mich.

FOR SALE—1905 "Franklin" runabout in absolutely first class condition, used for demonstration only, and has had the best of care and is in every respect as good as new. R. D. Ramien, 230 Grand Ave., Milwaukee, Wis.

FOR SALE—Olds Runabout, just overhauled and in best of running order. Rear tires nearly new. New top, never used. \$100 worth of extras. All for \$370. Will demonstrate. C. D. Dulin, No. 42, Webster, Iowa.

MARION side entrance, four-cylinder car, \$1,050. A. Zell, Park Ave. and Biddle St., Baltimore, Md.

FOR SALE—Packard Model L, four-cylinder, rear entrance, perfect condition, new last November, run but 1,500 miles; price \$2,000. Also Packard four-cylinder, Model N, side entrance, perfect condition, new in June, run 2,000 miles; price \$3,100. So perfect is the condition of both machines that they can scarcely be told from new cars. Address Theodore Strawn, Ottawa, Ill.

FOR SALE—1905 Olds Runabout; excellent condition; not run over 800 miles; \$20 worth of extras. First check for \$570 takes it. H. A. Coon, Manchester, Iowa.

FOR SALE—Light touring Cadillac, Model F, 1905, perfect condition. Address P. O. Box 396, Johnstown, Pa.

FOR SALE—1904 Indian motorcycle, perfect order, \$125. Lock Box No. 97, Muskegon, Mich.

WANTED—Light touring car; good order; priced right. Franklin preferred. Lock 132, Newport, Ind.

WANTED—Automobile agent for Illinois product. Covers four-cylinder cars second to none made in this country; prices, \$2,500 to \$4,000. Certain conditions make this a great opportunity for high class man with large acquaintance and capital enough to run the business on a liberal scale. D., care MOTOR AGE.

FOR SALE—Model E Rambler, runabout, in first-class order; or will trade for electric machine. Address F. W. P., care MOTOR AGE.

FOR SALE—Haynes-Apperson, 1904, light touring car. Make offer. Bought late; used very little. Dr. Wm. M. Stith, Petersburg, Va.

DEMONSTRATING cars at low prices. '05 Model F Knox touring car, glass front, top, etc., run less than 1,200 miles, \$1,500. '05 Elmore touring car, top, etc., run only 500 miles, \$1,000. '05 Stanley surrey, fine condition, \$750. '05 3-cylinder Cameron runabout, good as new, \$500. '04 Stevens-Duryea, \$700. Lowell Auto. Corp., Appleton St., Lowell, Mass.

WILL EXCHANGE 16 H. P. car, O. K., for runabout Rambler, Olds or Orient preferred. Lock Drawer 189, Hawarden, Ia.

FOR SALE—1905, 20 H. P. car. Cost \$1,700; will sell for \$1,150. Guaranteed O. K. Address X. Y., MOTOR AGE.

FOR TRADE—A new \$500 Schiller piano for runabout, Mitchell preferred. Schiller Piano Co., No. 823 Francis St., St. Joseph, Mo.

FOR SALE—Locomotive steamer, perfect condition, \$175; 2 Model "E" Ramblers, good condition, \$225-\$300; 2 12 h. p. double cylinder Elmores, detachable tonneau seats, \$250-\$450; 1 machine with 7 h. p. Oldsmobile engine, great bargain, \$125; 20 h. p. Phelps, 3 cylinders, \$500; Model "E" Rambler with wheel steering, run less than 150 miles, \$425; 1903 Winton, 20 h. p., with tonneau, \$900; 10 h. p. Ford runabout, \$375. E. S. Youse, Reading, Pa.

FOR SALE—Folding bow top, never used; will sell at bargain. Address Richard Massey, Birmingham, Ala.

WANTED—To buy good second-hand Petrol cars, also chassis or sets of parts for building same; state terms, etc. The Thomson Motor Car Wks., Armadale, Victoria, Australia.

FOR SALE—Marble Swift 15 H. P., friction transmissions; bargain; new. 729, 119 Monroe, Chicago.

FOR TRADE—A new piano, worth \$400, for 1904 or 1905 runabout, Olds preferred. E. E. Beatty, Mason City, Ia.

1904 Peerless, 24-30 horsepower, in first-class condition. Must sell at once, cheap. H. N., care MOTOR AGE.

SPECIAL BARGAIN—'04 Cadillac tonneau, \$550; Olds, Michigan or Cameron cars cheap. Motor-cycles, \$85 to \$125. C. R. Baker, Salem, Ohio.

FOR SALE—1905, 16 H. P. Elmore car. Run 3 months. 1 outside casing. 4 inner tubes. Extra tools. Price \$1,000. J., care MOTOR AGE.

FOR SALE—A number of second hand autos in first class condition. A. H. Ekbergh, 907 Nicollet Ave., Minneapolis, Minn.

FOR SALE—2 cy. 20 H. P. Winton, with extension cape top and glass front; an exceptional bargain. H. G. M., care MOTOR AGE.

FOR SALE—1904 Winton; elegant condition; have bought Model A Winton. C. E. Wilkins, Dewey Hotel, Omaha, Neb.

FOR SALE—High grade 8 h. p. double opposed engine, \$125. 4 h. p. Marine and Auto motors, \$65. Write. A. J. Houle Co., S. East St., Holyoke, Mass.

AUTOMOBILE DEALERS EVERYWHERE—We have a live proposition to offer dealers and agents in every town and city to handle our ready to deliver cape cart tops. Auto Top & Equipment Co., 1604 Broadway, New York City.

FOR SALE—8-10 passenger wagonette; sample car 1905-6 Model; steam; price and description on application. Thompson Auto Co., Olneyville Sq., Providence, R. I.

WANTED—By first class auto engineer and salesman, position as salesman with good company or agent. F. M., care MOTOR AGE.

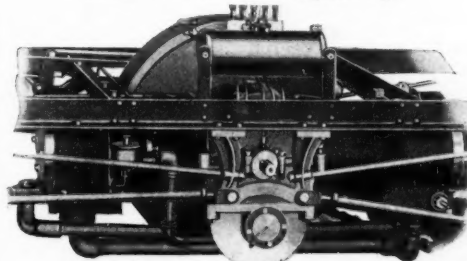
CHICAGO School of Motoring, the original automobile school in Chicago. One hundred and eighty graduates the past year, to whom we refer upon request. Automobile owners, prospective buyers and young men wanting to become expert chauffeurs will save a great deal of money and a lot of worry by studying the mechanism, care and repair of gasoline automobiles in our shop, where all parts are open so you can see how they are made and how they operate. We give thorough and practical instruction. Competent chauffeurs supplied. Chicago School of Motoring, 264 Michigan Ave. Phone Har. 119.

EQUALIZED SPRING TRUSSED FRAME OF THE

1906 Logan

That Car of Quality

One of
Many
Points
of
Strength



PATENT PENDING

One of
Many
Reasons
for
Comfort

We are ready to talk business for 1906. :: Better write to-day.

THE LOGAN CONSTRUCTION CO.
CHILlicothe, OHIO

WANTED—A good second-hand or demonstrating car; in first-class condition. Prefer Cadillac model "B" or "E," 1903, or a light tonneau car of standard make. Chas. H. Wise, Lohrville, Ia.

TIRES.

ALL KINDS RUBBERINE FILLED are puncture proof; give twice the service, saving delays; resiliency retained; get sample and prices. Also new and second-hand tires. Automobile Palace, 152 W. Jackson Blvd., Chicago.

FOR SALE—1904 Winton touring car with top, 2 headlights, baskets, etc.; car in perfect condition; in need of money and will sacrifice for \$900. A. W. Granger, Grand Hotel, Cincinnati, O.

AUTOCAR, type 8, with four cylinder 3 3/4 x 4 Rutenber engine, magneto and battery ignition, McCord force feed oiler, cape top, Rushmore lamps, extra tubes, tools, etc.; good condition. Also Remy four-cylinder magneto and coil (new). Thomas H. Halton, Allegheny Ave. and C St., Philadelphia, Pa.

FOR SALE—Small runabout, complete all but motor, for \$125. Address Reinke, 150 W. 68th St., Chicago, Ill.

FOR SALE—Winton, 1903, with top, acetylene lights, new rear tires; car thoroughly overhauled and in fine condition. Price \$750. Address M. F., care MOTOR AGE.

WANTED—Growing concern wants assembling department foreman. Good chance for experienced man to better himself. M. E. M., care MOTOR AGE.

FOR SALE—New Brass Trimmed, Plate Glass Front, Canopy Top, cost \$125.00; our price, \$65.00. George Auto Co., George, Ia.

Wanted Names of Automobile Owners that they would rather see their tires being pumped up than do the pumping. Our **Tom Tire Pump** fits on any Standard Machine and is worked by the motor, easily attached, well tested out, all enclosed and very satisfactory. Get acquainted with it. It is something that you will like. Agents wanted.

NYBERG AUTOMOBILE WORKS, CHICAGO, ILL.
Fully described in Horseless Age, Feb. 1; Automobile Review, Feb. 4.

KINGSTON CARBURETORS

1905 model, 1 inch inlet, absolutely new; \$4.75 each. Cash with order.

HOLLEY BROS. CO.

661-673 Beaubien St. DETROIT, MICH.

EVERYTHING FOR

Man, Motor and "Mechanician"

Specialties and Leather and
Wool Winter Clothing

A. L. DYKE AUTO SUPPLY CO.

OLIVE AND WALTON STREETS

ST. LOUIS, MO.

ROBT. F. BRITTON
Pres. and Mgr.

ROY F. BRITTON
Secy. and Treas.

REST YOUR "Springfield" Auto Lift
TIRES with the



Showing Lift in Position to Receive Car.
You turn the cranks and the four wheels will raise 7 inches off the floor. Write for description and price.
E. J. DAY & CO., Pacific Coast Agents, San Francisco
THE SHAWVER CO., Springfield, O.

**FOR \$2 PER YEAR
READERS OF
MOTOR AGE**

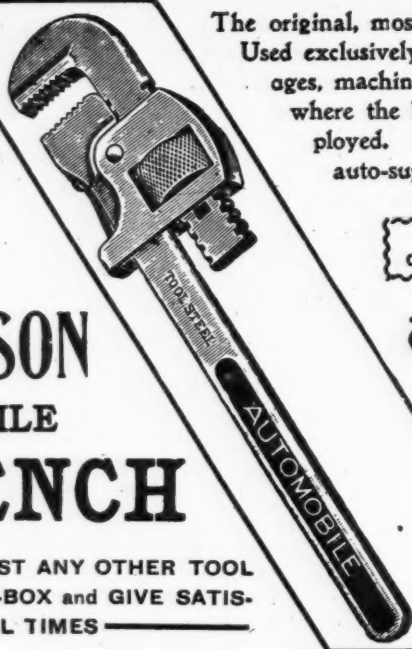
Receive 1560 pages of interesting mechanical descriptions and touring hints

WHERE CAN YOU BEAT THIS?

When
your
Auto
isn't
just
right,
use
the

STILLSON AUTOMOBILE WRENCH

IT WILL OUTLAST ANY OTHER TOOL
IN YOUR TOOL-BOX and GIVE SATIS-
FACTION AT ALL TIMES



The original, most efficient and durable.
Used exclusively in all up-to-date gar-
ages, machine shops and all places
where the best mechanics are em-
ployed. Sold by all leading
auto-supply jobbers and dealers.

WRITE FOR
CIRCULAR AND PRICES

Walworth
Mfg. Co.

Boston
Mass.

U. S. A.

MOTOR CAR SPECIALTIES and SUNDRIES

WE SELL EVERYTHING
WRITE FOR CATALOG
THE AUTOMOBILE EQUIPMENT CO.
252 Jefferson Ave. Detroit, Mich

ORIGINAL MANUFACTURERS OF AUTO TOP MATERIALS

We are headquarters for water-proof materials
of all kinds and make a specialty of materials
used in the manufacture of Auto Tops, Storm
Curtains, Slip Covers, etc.

Write for samples and price list.

L. J. MUTTY CO., Boston, Mass.

Hyatt Roller Bearings

TURN FRICTION INTO ENERGY

HYATT ROLLER BEARING CO.
Harrison, New Jersey
ARE YOU FROM MISSOURI?



Write for catalogue.

Eclipse Buggy & Mfg. Co., Fort Wayne, Ind.

Eclipse Tops

LOOK BETTER
WEAR BETTER
MADE BETTER
ARE BETTER
than any others.
It's an old story with
us. We have been
making good tops
practically all our
business lives.



JUMP SPARK COILS

For all Purposes—Sin-
gle, double, triple and quad-
ruple, for stationary engines
and automobiles. Guarant-
eed in every particular.
Fine Vibrator.

Send for Catalogue K.

THE KNOBLOCK-REIDEMAN MFG. CO., South Bend, Ind.

SPECIAL AUTO PARTS

We make parts from your own design from
either brass or aluminum

ON CONTRACT BASIS

Our positive power driven sight feed OILER
will interest you. Write for description.

AUTO BRASS & ALUMINUM CO., Flint, Mich.



GET NEW
CATALOGUE

Our New Size

In addition to our Size "B"

Steering Connections

we now have ready Size "C,"
with 1 1/4 in. ball and socket
joints and all other parts pro-
portionably larger, machined
and ready for use.

**The Billings &
Spencer Co.**

HARTFORD, CONN.



Every operator of an Auto-
mobile, Motor Cycle, or
Launch should own one of our

AMERICAN POCKET AMMETERS

For testing dry cells. The only
RELIABLE pocket ammeter
on the market. Lasts a life-
time.

AMERICAN COIL COMPANY
P. O. Box 591, West Somerville, Mass.

WRITE FOR 1905 CATALOGUE

AUTO SUPPLY CO., 1662 Broadway, New York Agents
GEO. H. BILL, 305 Larkin St., San Francisco, Cal.

Brass Work OF ALL KINDS TO ORDER

Send us a sample for estimate of cost

IMPERIAL BRASS MFG CO
249 So. Jefferson St. CHICAGO

Want to Buy Good Four-Cylinder Engine Works

Engine suitable for
Commercial Purposes

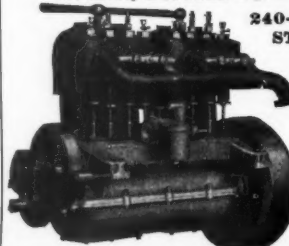
Must be A1 in
Every Particular

Address "BUYER,"
Motor Age, Chicago

CONTINENTAL MOTORS

Transmissions, Clutches, Carbureters, and
Accessories are manufactured and sold only by
CONTINENTAL MOTOR MFG. CO.
Formerly AUTOCAR EQUIPMENT CO.

240-244 W. LAKE
ST., CHICAGO



BEWARE OF IMITATIONS

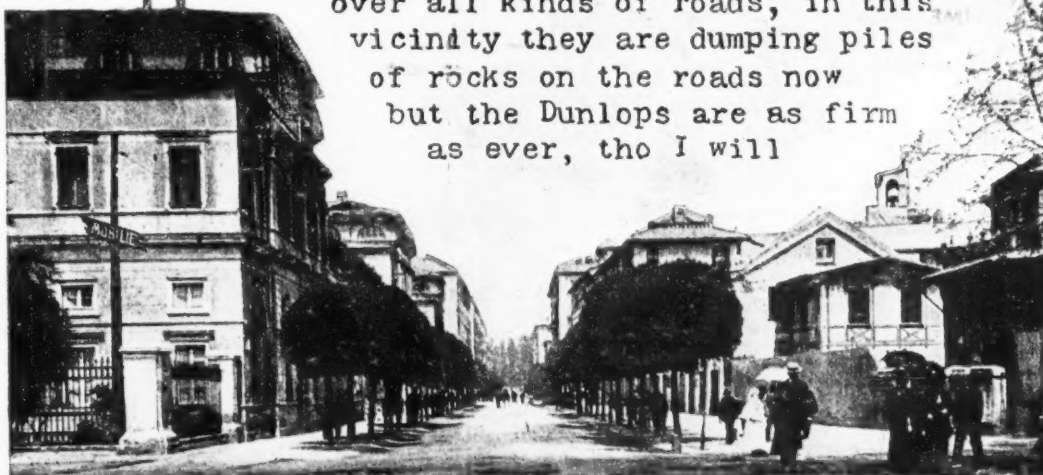
Also Marine Re-
verse Gears and
Propellers.
Send for Catalog.

PETERSON & DRAPER
Direct Factory
Representatives.

**ATWOOD
STAY-LIT**
LAMPS ARE THE BEST
ATWOOD MFG CO., Makers
Send for catalogue Amesbury, Mass.

The Hartford Perfected Dunlop Tire

July 12. The tires are still holding up beautifully over all kinds of roads, in this vicinity they are dumping piles of rocks on the roads now but the Dunlops are as firm as ever, tho I will



give them a little air (the first in 1601 miles since leaving the factory) before starting for Paris.

Ed. F. Hill Burnengo - Savona 13724

Walter Hale

Postal No. 2. Watch for
others to follow.

THE
Hartford Rubber Works Company
HARTFORD, CONN.



THE most enjoyable days for touring of all the year are yet to come but a perfect day is made miserable if the car you drive is unreliable. The Rambler is an ideal car for enjoyment. Because of its simplicity every member of the family can run it. There's only one lever to operate, giving two speeds forward, neutral and reverse. The fact that one hand controls the Rambler makes it the car most suitable for reasonable speed, perfect comfort and reliability.

Call at any of our branches for a road demonstration and, at the same time, ask for a copy of the Rambler Magazine.

BRANCHES: Boston—145 Columbus Avenue
Chicago—302 304 Wabash Avenue
Philadelphia—242 North Broad Street

MAIN OFFICE AND FACTORY
THOMAS B. JEFFERY & COMPANY

KENOSHA, WISCONSIN

NEW YORK AGENCY: 134 West Thirty-eighth Street.
Representatives in all leading cities